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ABSTRACT

This issue of the yearbook contains twenty papers that were presented and discussed at the eighth annual meeting of the National Reading Conference. Papers in part one relate to the various problems involved in starting college reading programs, including the administration of the program, selection and motivation of students, objectives, selection of materials to be used, development of reading skills, and evaluation of instruments and testing. Papers in Part Two deal with the effectiveness of tests and testing, reading deficiencies and personality factors, international students as readers, the effectiveness of discussion, textbooks, and recent research. (JM)

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STARTING AND IMPROVING COLLEGE READING PROGRAMS

The EIGHTH YEARBOOK of THE NATIONAL READING CONFERENCE

Edited by

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PREFACE

This issue of the yearbook contains twenty papers that were presented and discussed at the eighth annual meeting of the Conference. The Executive Committee, in planning for the annual meeting and the publication of the yearbook, felt that a need existed for continuance of reporting effective work in reading programs conducted in colleges and universities in different parts of the United States, for further evaluation of various types of programs, for exploring areas of possible improvement and for compiling reports on research. The Committee was also of the opinion that a greater emphasis should be put on problems, techniques and procedures in starting college reading programs. Comments by representatives, particularly those from smaller colleges, indicated that more information was needed that related to the task of starting an effective program.

Dr. William Eller accepted the task of planning the work and directing the program for the first day of the eighth annual meeting of the Conference, which was given to starting programs. The papers presented and included in Part One relate to the various problems involved, including the administration of the reading program, selection and motivation of students, objectives, selection of materials to be used, development of reading skills, and evaluation of instruments and testing. These articles were written by persons who have had several years experience in conducting and evaluating reading programs, and were edited for Part One by Dr. Eller.

One of the main purposes of the Conference is to encourage research in reading and to provide channels through which it may be reported and published. Evaluation of methods, techniques, procedures and outcomes is also one of the functions. The dynamic nature of the work of the Conference is reflected in rise of controversial issues and further evaluation of the bases of such differences.

Effectiveness of tests and testing is given considerable space in Part Two—one article by Dr. J. B. Stroud and a detailed report of research done by Dr. Earl Rankin, Jr. on the validity and utility of the cloze technique.

The value of this yearbook and the success of the National Reading Conference must be credited to the workers in the field of reading improvement who have generously given their time and shared their talents in the preparation and presentation of the material to be found on the pages that follow.

April 1959. OSCAR S. CAUSEY.

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PART ONE
STARTING PROGRAMS

Starting A College Reading Program

BY WILLIAM ELLER

State University of Iowa

An examination of recent yearbooks of the National Reading Conference would reveal very few articles on the basic elements of a college reading program. In 1952 and 1953, the first meetings of the Southwest Reading Conference (the parent of the present Conference), included extensive exchange of ideas on administrative procedures, student selection processes, usage of mechanical equipment and assorted other fundamental problems. Quite understandably, as the Conference has grown both in maturity and in geographical scope, the meetings have given decreasing emphasis to such rudiments as the pedagogy of the tachistoscope and have devoted the bulk of the program time to more sophisticated problems of college reading—research, evaluation and interactions with other academic disciplines, for example.

During the past two or three years, when the Conference has not dealt with the practical day-to-day aspects of college reading, there have been in attendance at the meetings a number of newly appointed directors or instructors of reading courses. Naturally, these beginning workers were sometimes disappointed when the meetings did not include much of the basic administrative and pedagogic information which they felt they needed, and sometimes they complained to the older members of the Conference that they were not receiving the help they needed. As a result, the Executive Committee decided to allot the opening day of the December, 1958, Conference and the first two-fifths of the Yearbook to the problems of beginning reading programs.

It would seem that the first problem encountered by a new college which is considering a reading program is the question of whether to proceed. When this decision is made by a faculty committee or an administrative group, it is often necessary to educate elements of the staff, or at least certain individual professors, as to the value and role of a college reading program. Some plans for handling these introductory problems are explained by Albert Kingston in the article which immediately follows this introduction.

There is, of course, the possibility that the committee or administrative agency will decide not to add a reading program to the college curriculum, in which case the pro-reading group may have to begin another campaign. Lyle Miller, in the final article in this section, points out that a number of schools have even abandoned their reading programs during the past three or four years. This hardly seems like the sort of information which should be mentioned in a consideration of the subject of starting a reading program, but it is appropriate at this point for a good reason. Quite often when a reading program is abandoned, this action is taken because the instruction and class routine has not been worthy of continuation; in some instances, the program has been a downright failure. Of course, there are other very good reasons, such as serious shortage of funds, for the abandonment of reading programs, and when a college administration abolishes the reading improvement course it usually offers some reason other than the failure of the program. However, failures are not as uncommon nor impossible as might be hoped. When a reading course is a failure, the problem is usually that the classroom procedures and materials were not clearly planned in advance by an instructor who knew what he was doing. It is really not difficult to conduct a reading program in most situations so that it will be an overwhelming success; it is also easy to produce a failure that will not be included in the college curriculum for a second year. The difference is mostly a matter of getting started properly, which is another reason for this special section of the Yearbook. The differences between successful and unsuccessful programs are mostly matters of (1) smoothness and efficiency of classroom procedures, (2) conditions under which mechanical aids (if any) are used, (3) suitability of instructional materials, and (4) overall effectiveness of teaching.

It may be worth while to consider each of these four factors separately so that illustrations of good and bad practice can be offered. Smoothness of classroom procedure is a major concern because reading courses commonly have numerous materials in the students' hands, and these items are shuffled about as the instructional emphasis changes several times during a class period. Each student may have one or more comprehension tests, one or more progress graphs, some scoring keys, a source of printed reading selections, and some answer sheets in his possession. If the class is not given some procedures for acquiring and relinquishing these materials easily there will be an embarrassing amount of confusion as items are passed back and forth. It is quite possible for students to feel—though they may not verbalize their feeling—that the class period is so "messy" that it isn't doing much good. On the other hand, if they are given simple instructions for picking up daily materials, most of this disturbing element can be eliminated. It is rather common for reading instructors to lay out certain materials near the entrance to the classroom so that students can pick up their equipment for the day as they enter the room. Harry W. Johnson, in his article on reading pacers, in this Yearbook, describes one such arrangement. Some reading instructors are blessed with such fine physical facilities that they have room to lay out all needed materials in front of the seats before the students enter the room.

Conditions under which mechanical aids are used may prove to be a handicap to the total reading program if the projection environment is not of good quality when reading films or tachistoscopes are used, for example. It is not uncommon for a school to become enthusiastic about a reading program and proceed with the actual instruction without providing a suitable room for the projected devices being used. Last year, for instance, the writer observed the first day of a reading course in which reading films were being shown on such a poor screen and in such an inadequately darkened room that he could not read the film himself, even though he had probably seen that film at least a hundred times previously. Can students be expected to respond favorably to instruction under such conditions? (The situation was markedly improved the very next day, incidentally.) If mechanical devices are to be used in a reading course, it is imperative that the conditions essential to their optimal use be provided. Usually a considerable sum has been invested in the equipment, and it is certainly a false economy to destroy the effectiveness of these machines by compromising on the audiovisual facilities which enhance their use. This principle may seem so obvious that one would expect it to be ignored only rarely; it is included here, however, because experience has shown it to be a common source of difficulty.

No one would doubt that the suitability of the instructional materials could be a major cause of the success or failure of a reading program, but an illustration may still be useful. Consider some of the comprehension questions which follow certain of the rather good reading selections in the *Better Reading Books* published by Science Research Associates. You will find that a few of the questions deal with rather trivial details in the stories. A student who encounters questions of this sort several days in a row soon learns to look for the minor details as he reads, but this is not what the reading instructor wants him to do, because he is developing a style of reading that will not lead to high speed and comprehension scores in a long run. Comprehension questions which are based on the more important story elements would induce much better reading habits into student readers.

The overall effectiveness of the teaching includes a lot of possibilities which help or hinder the reading instruction. In general, if an instructor utilizes what he knows about learning, the reading process, and adapting to individual differences he will be teaching effectively. But if he rigidly follows prescribed procedures, some students will likely fall by the wayside. L. D. Gilmore, in his description of tachistoscope usage illustrates this point when he first attributes part of the unpopularity of that instrument to the unimaginative use which it occasionally gets, and then goes on to suggest pedagogic variations in tachistoscope use.

Because of time limitations during the 1958 Conference and space limitations in this Yearbook, this section on the beginning college reading program is concerned mainly with the typical short-term reading course which emphasizes improvement in basic rate and comprehension for the great heterogeneous bulk of students. In that most college reading programs take this direction, this specialization of the Yearbook is justified. However, it is quite possible that a reader might draw one or two unfortunate conclusions. Since there is so much consideration of the more-or-less mechanical aspects of adult reading, it is conceivable that someone might infer that the other types of reading instruction are not important, or that they are considered unimportant by the planners of the Conference. The more serious elements of comprehension—critical reading, predicting outcomes, etc.—are, if anything, even more important than the basic speed and comprehension training. Further, the philosophy of some institutions requires that the poorest readers be given instruction which is essentially remedial. These components of a mature reading program are not included in this yearbook since they are not so likely to be included in a first-year reading course, but any reading specialist who is an educator and not just a technician will begin to think about the other kinds of reading, once his program is under way.

Inasmuch as there are three articles on mechanical aids in this yearbook, it is also possible to come to the erroneous conclusion that it is impossible to have a good reading program without some such devices. This is most unfortunate because mechanical aids require a sizable investment, and some institutions might assume that two or three thousand dollars worth of equipment is necessary, and thus might conclude that they can't afford a reading program. It is distinctly possible to have a high-grade reading course with no more than two hundred dollars invested in workbooks, other printed reading materials, and a few tests and student-record materials. It is but fair to add however, that an economy program of this sort puts a lot of extra strain on the instructor. The mechanical aids make the teacher's load more tolerable in that they help adapt to individual differences, increase opportunities for students to work independently, and appear to be quite motivating.

A few introductory remarks about the specific articles which follow may be in order. Because so many administrtive matters have to be arranged before the reading program can begin, these have been considered first by Albert Kingston. He was asked to treat the administrative problems because he had very successfully done so at an earlier conference, and also because he has had administrative experience on the reading programs of two state universities and a large metropolitan school system. Several years ago, when Ernest Jones directed the reading courses at Northeastern State College, Tahlequah, Oklahoma, he worked out some good practices for setting goals with students, so he was asked to develop the segment on selection and motivation.

The remainder of the articles concerned with the beginning reading program deals with methods and materials. When the 1958 Conference was being planned, Harry Johnson of Omaha University was completing his manual for the reading pacer, so he seemed a logical prospect to present that topic. Inasmuch as the reading courses at Southern Methodist University include work with several kinds of reading films, Hazel Carroll was qualified to provide a pedagogy for their use. When L. D. Gilmore was a graduate student at Oklahoma University he developed a number of special materials for the tachistoscope, some of which he still uses: they are described in his account of that instrument. The article by Cora Fischer was not presented at the 1958 Conference but was added to the Yearbook because the general area of comprehension seemed to be slighted in the other discussions, and some treatment of comprehension was considered necessary. Finally, Lyle Miller's consideration of current practice provides a good summary of procedures and materials being used by established programs. This should be of considerable value to the builders of a new reading program as they endeavor to make the important decisions about their prospective instruction in college reading.

Problems of Initiating a New College Reading Program

ALBERT J. KINGSTON, JR.

University of Georgia

Institutions of higher learning tend to be conservative in nature, as those who have ever served on committees to review the various curricula of their colleges readily can testify. Suggestions regarding the addition of new degree programs or additional majors usually meet resistance from a portion of the faculty and administration. It is probably even more difficult to eliminate certain phases of a curriculum. When viewed from a philosophical framework, it seems likely that a reluctance to constantly alter offerings or adjust curricula to current pressures is beneficial to higher education in the long run. On the other hand, such attitudes and tendencies create real problems for those who are trying to initiate comparatively recently developed services such as reading improvement programs.

Individuals who foster plans to establish reading programs at the college level can expect to have their proposals greeted with mixed reactions. In all likelihood the whole gamut of emotions from overt hostility through indifference to enthusiastic support will be precipitated. At this stage many of the less hardy or more thin-skinned may abandon the entire plan. The more zealous or tougher-hided proponent may try to "bull his way through—like a fullback charging through the center of the line."

Some general points of strategy may be helpful to those who have not experienced this situation. In general, the proponent should think through his proposal carefully before he presents it to the faculty. By so doing he can anticipate some objections before they arise and should be able to present a clear-cut, definitive program rather than a mere outline of one. Secondly, before making the formal proposal a great deal of spade work should be done to "plant seeds, to fertilize and to water them." He who is proposing the program should know where he will gain support and where his suggestions are likely to meet the greatest opposition. Although these factors will be discussed in more detail later, they are mentioned here to point out another difficulty. Almost any proposal to inaugurate a college reading program will undergo modification or revision when presented to the faculty and administration. Often a reading program is limited in its future development by the nature of the compromises or modifications made at the time it first is initiated. A word of caution is in order regarding the acceptance of a makeshift or compromise program which may preclude subsequent development or expansion in desirable directions. The futures of some reading programs are jeopardized or severely handicapped because they became well established and accepted in their first form, and subsequent modification became nearly impossible.

In 1952 the writer discussed various problems related to administering the college reading program.[3] Many of the points discussed then are pertinent today. In addition, however, the additional experiences of those responsible for administering reading programs as well as the certain criticisms of higher education have added new problems.

In my opinion, it probably was easier to "sell" a reading program to college administrators and faculty in the late 1940's and early 1950's than it is today. Recent criticisms and attacks on all levels of education have put many educators on the defensive. The unfavorable comparisons of American colleges with those of Europe have made some university administrators cautious. It seems reasonable to assume that the average college president today would look askance at any new program which might smack of aiding the weak or inept scholar or, at least, tend to view it more cautiously. In many institutions, particularly those which received part or all of their support from public funds, such caution, undoubtedly is wise. In some instances the public press would have us believe that a student who is not majoring in physical science and/or mathematics is wasting the taxpayers' dollars. Few would deny that current interest in, and criticism of, our schools has caused educators to re-examine, justify and explain certain policies, curricula, and institutional practices. In addition to the caution which may result from such criticism, another factor may serve to defeat attempts to establish university reading programs. In less than two years, in 1960, the first wave of the "war baby crop" will apply for admission to our colleges and universities. It is predicted that more students in all parts of our nation will apply for admission to institutions of higher learning. Almost all institutions, thus, will face a need for providing for increased enrollments. Coupled with the need to provide expanded facilities to handle larger student bodies, is the likelihood that the purchasing value of the dollar will continue to decrease. If inflation continues many privately endowed institutions will face added problems in order to finance their programs. Tax-supported institutions will also find difficult times ahead as there seems to be increasing competition for the tax dollar. It is likely that such competition will not be decreased in the next few years.

To summarize, certain real barriers may prevent the future establishment of college reading programs, particularly in the larger and older universities. Whether these same barriers are encountered among smaller colleges and junior colleges remains to be seen. The purpose and philosophy of these institutions largely will determine their receptiveness to reading programs. As more students seek admission to universities it seems reasonable to assume that standards for admission and retention will be raised. It also may be likely that many reading programs which operated in the post World War II era and in the early 1950's, will be curtailed or even eliminated. It seems reasonable to assume that proposals to initiate programs will encounter greater indifference or resistance.

Persons who plan to establish, or who hope to inaugurate reading programs in the near future, would be wise to study the changing role of the college reading program during the past ten years. Shortly after World War II many colleges and universities established programs which were more or less modeled after those employed by the Armed Forces. In many programs emphasis was placed upon increasing reading rate. Tachistoscopes, reading pacers, and other mechanical aids were used in profusion. Descriptions of various types of programs seemed to imply that the use of mechanical devices in conjunction with specially designed workbooks would result in gains in rate and comprehension which could automatically be transferred to other reading tasks. It is interesting to note that many college reading programs developed as something quite apart and separate from the traditional methods of reading instruction employed in the elementary school.

College reading programs established shortly after World War II were greeted with enthusiasm and many extravagant claims were made concerning their value. In some cases, the college reading program was regarded as a panacea for almost

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all of the difficulties encountered by students. In 1952, Bliesmer noted an impressive number of reports devoted merely to describing various types of programs.[1] In 1953 the same writer observed that "gains in reading abilities or skills were claimed by practically all who reported, or referred to actual programs; but bases for evaluating gains were considerably varied and were often not clearly identified and tests of significance were 'significantly' lacking."[2] Bliesmer also noted that there was a tendency to over-generalize and to accept positive results uncritically.

During the years 1955-56 there was a decrease in the number of descriptions of programs found in the literature. Increasing emphasis was given to the type of instructional materials employed, and greater stress given to developing flexible reading attitudes and habits. The role of mechanical aids was examined more critically and the materials developed gave evidence of recognizing the need for wider variety in content and readability. Comprehension skills also received more attention. More concern was shown for the interpretation of materials, critical reading skills, and the development of generalized concepts. Such developments have tended to broaden the objectives of the college reading program and to put it more in line with the purposes of upper elementary and high school reading instruction.

An interesting commentary on the development of college reading programs may be found in the development of this conference. Since the second conference, representatives of industrial training programs have participated. Such participation has been beneficial and welcomed. It is likely, however, that in the light of our past experiences with both college and adult reading programs, clearer distinctions should be made between the objectives and methods of the college program and objectives and methods of the industrial program. Certainly we can agree that the objectives of the university program must be broader, be geared to the needs of the 17- or 18-year-old youth, and should be designed to help him study and master a wider variety of materials. In the development of reading skills the college program should follow the high school program as closely as the high school program should follow the elementary school program. It is imperative that those who plan to develop college programs organize their offerings so as to help the student develop attitudes, skills, and habits which will help him to master his academic studies.

It is also likely that the typical adult reading program has more limited objectives.

For those who are not completely discouraged or confused by now, the following suggested procedures might be helpful in assisting in the establishment of a reading program. The procedures, of course, should be modified to suit the exigencies of the local situation.

First, a survey should be made to determine the need for a college reading program. It is often advisable to have an inter-departmental committee appointed to examine the local situation. Such a study probably will reveal that certain campus groups already are trying to assist students with reading problems. The counseling center, the departments of education or English, faculty advisers or other student personnel workers are most likely to be already making efforts in this direction. The survey may reveal that the present services are fairly adequate and perhaps only need further expansion. On the other hand it may reveal that present services fail to accomplish the desired goals and that a newly organized unit might best be able to serve student needs.

Secondly, a careful study should be made of the needs of students. Is a reading clinic needed to help them adjust to college study, or should other student personnel services be developed first? A college reading program should not function in isolation. To be successful it needs support from counseling units, guidance centers or other student personnel services as well as from faculty groups and administrative offices. A basic question must be answered. Do students really need a program designed to improve their reading skills?

The third step grows out of the first two steps. If these investigations reveal that students need help to a greater extent than existing facilities or practices can supply, the next question involves the type of program which should be developed. At this point it becomes necessary to involve representatives from all faculty and administrative groups which are likely to be concerned with the problem. One of the most interesting aspects of the development of college reading programs has been the variation in background of those responsible for the administration of the services. In some institutions the reading program is supervised by the psychology department; in others, the English department. Some institutions have joint sponsorship, such as Education-Psychology or Education-

English. In other universities the reading program is administered by the counseling service or the psycho-educational clinic. A few programs are supervised by administrative officers of the institution. The determination of who should be responsible for the reading program is extremely important because it probably will determine the nature of the program and also the support it will gain. If the university boasts a counseling center which already is staffed with specialists and is serving the entire student body, or if the college of education has a reading clinic designed to train its students to deal with the reading problems of elementary school pupils, an extension of these services to include the college reading program seems logical. Such expansion may be justified not only in terms of improving graduate training opportunities but also from the viewpoint of best achieving the desired outcomes.

Those who have been responsible for conducting college reading programs have noted that reading improvement is usually merely one of the needs of their clients. Too often students are poor readers because of weak scholastic aptitude. Other students have not developed positive attitudes toward reading and college study. Many lack study habits and skills. Other students find it difficult to concentrate, either because they have failed to develop positive attitudes toward academic study or because emotional problems intervene. Too often the teacher of a reading course fails to recognize the student's basic difficulties and treats his symptoms rather than the underlying causes of his problem. Where the reading program is operated in conjunction with a group which is organized to examine personality dynamics, these fundamental factors are more likely to be taken into account.

In smaller institutions which lack specialized services, reading programs must follow a different type of development. As all college students are faced with reading tasks regardless of their major course of study, all departments of the college are more or less concerned with the reading achievement of their students. Even though an institution lacks a well-defined counseling center or educational clinic, it still may need some type of reading improvement program. Reading courses have been developed to fill the need. If an institution decides that a reading course is feasible and desirable, the immediate question to be answered is: who should be responsible. The literature on college reading points out that successful programs have been developed under the control of such academic departments as English, education, and psychology. In determining where the course should be taught, several factors should be considered. The first question to be answered should be: Who can best do the job? Interest in the program, willingness to give it whole-hearted support, and the professional competency of the teaching staff must be considered. In addition, the selected department should be able to secure the active support of other faculty groups, if the program is to be successful.

If the decision has been to develop a "reading course," additional problems are raised. So, a fourth general step might be to answer these questions: First, should the course carry academic credit or not? Many factors bear on the answer to this question. It should be recognized that many college teachers feel that reading is something that students should have mastered prior to entering college. They point out that if credit is given for reading improvement, it should also be given for remedial arithmetic, or handwriting, or for counseling. Proposals to grant credit for reading improvement often meet passive resistance or overt hostility from the faculty group which prides itself on academic standards. As a result, the reading course—and sometimes the department sponsoring the course—finds itself in low repute for "spoonfeeding." On the other hand, most college students have been conditioned to view education as the accumulation of credits. Granting credit probably keeps down attrition, and attendance is likely to be more regular and prompt. Many students with reading weaknesses need the reinforcement or motivation given by course credit. A second problem evolves if the decision is made to offer credit. How much credit should be given? The first clue to answering this thorny question involves looking at the relationship of the reading course to other courses in the school catalogue. If the freshman English course carries three semester hours, it may be unwise to give comparable weight to the reading course. It probably will be easier for a student to earn honor points in the reading course than in the English course. Failure to consider such factors sometimes have caused reading courses to become "shoppers' specials."

A third difficulty in offering credit for the reading course grows out of the natural tendency of administrative officers to view the reading program by the same standards employed in viewing academic courses. The same student-teacher ratio often is taken for granted, the number of class meetings per credit hour per semester is assumed, and the same anticipated instructional cost is expected. Such considerations may prevent the administrator of the reading program from developing the course as he would like. A fourth difficulty arises out of grading schemes. How should one grade participants in a reading course? Should one establish standards as measured by standardized or informal tests, grade on the basis of the number of exercises read, or by gains in reading rate, comprehension, vocabulary, etc., from the beginning to the end of the course.

There can be no pat answers to the problems just discussed. In general, I feel that minimum credit is helpful and I believe that the reading course should not be allowed to substitute for an academic course. Some schools allow honor points attained in the reading course to count as elective credit. The one responsible for the reading program should be allowed to limit class enrollment. Large enrollments preclude careful diagnosis and adequate counseling while encouraging "shotgun" and mechanical techniques of instruction. Most courses should not enroll more than 20-30 sudents depending upon the overall teaching load of the instructor.

A fifth factor that must be considered involves the length of time a student is to be enrolled in the reading program. Ideally, the student should spend sufficient time to master the required skills and to modify his attitudes and habits. He also should be provided with opportunities at a later time to obtain additional help as needed. If the reading improvement program is set up as a course, these factors must be modified to conform to the quarter or semester standard of the institution.

Another important consideration to he who would establish a reading program involves his selection of his students. Most college programs draw the major portion of their enrollment from the freshman class. If the institution has a well-defined freshman testing program, information about the reading achievements of entering students is fairly accessible. At some institutions, students who score below a certain point are advised to enroll but not required; others compel enrollment. In my opinion, required enrollment is less desirable than voluntary participation.

Another important consideration involves methods of instruction. A reading course approach usually implies group work as contrasted with the more individualized clinic method. Often there is less diagnosis and less individualization of instruction. Most reading courses attempt to present a variety of skills to the enrolled groups. Ideally, all reading courses should provide some diagnosis, some scheduled conference time to help students to recognize their needs and to encourage and assist them throughout the program. Careful evaluation of student progress is imperative and a sufficient variety of instructional materials must be available to meet the needs of all students. One of the cheapest and quickest ways to accumulate a wide variety of instructional materials is to secure copies of all available workbooks, classify the exercises they contain, tear them out of the books and file them by various categories. In this way they are readily available for use with students who need practice in developing those particular skills. This technique recently has been used by a publisher who now provides a specially packaged kit of materials.

Another consideration for those who will organize a college reading program involves the cost of such a service. Local factors in the long run should determine total expenditures for this purpose. So many factors enter into the total cost that average figures are meaningless. Heavily mechanized programs which include reading pacers, group and individual tachistoscopes, reading films, and other audio-visual equipment naturally are more expensive. Programs which go in for elaborate testing and diagnostic procedures also are expensive. In general, the expense of a reading course can be expected to fall somewhere between the cost of an English or mathematics course and an individualized laboratory course similar to biology or chemistry. An individualized clinic program will be more expensive.

A final consideration should be anticipated even before the reading program is inaugurated. It was mentioned that the progress of each student should be evaluated constantly. Similarly, the reading program itself must be evaluated constantly. Too often we have been prone to accept the results of our efforts uncritically. Evaluation not only allows us to know our successes, but provides a basis for further improvement and subsequent development.

If after all of these factors have been considered one still desires to, or feels that he can organize and inaugurate a college reading program, I am sure that the chances for success outweigh the chances of failure.

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[1] Blliesmer, Emery P. "Recent Research In Reading on The College Level". *Second Yearbook*, Southwest Reading Conference, 1952.

[2] Bliesmer, Emery P. "Recent Research In Reading on The College Level," *Third Yearbook*, Southwest Reading Conference, 1953.

[3] Kingston, Albert J. "Problems In the Administration of A College Reading Program," *First Yearbook*, Southwest Reading Program, 1952.

Selection and Motivation of Students

BY ERNEST JONES

Central State College

The selection of students for college and university reading programs should be *entirely* on a voluntary basis. At this level, students will be successful only if they want to be and not because they are forced. It is problematical whether they should remain in college if they do not voluntarily wish to acquire tools necessary to make satisfactory progress.

Generally, a good plan is to make students aware of their placement or entrance examination results and suggest the availability of remedial or developmental reading courses. The student then decides whether he will enroll. This information could very well come through a guidance counselor or a faculty adviser during an orientation conference, either individually or in groups.

Some of the problems of motivation are solved through voluntary enrollment. Much, however, remains to be done. The first step is a complete reading diagnosis at the beginning of the course. Standard reading, vocabulary, and spelling tests, combined with an inventory of attitudes and an opthalmograph, may be used. When files are complete, there should be a thorough explanation and interpretation of the data, in class, followed by individual conferences where necessary. Particularly valuable for motivation is the utilization of opthalmographic data. Each student has his own eye-movement film attached to a sheet with recorded data. This seems to make the data more personal. With this before him, the student listens to a chalk talk. Explanation is made that if all other factors could be held constant, the reduction of the duration of fixation from .20 (about average for beginning college freshmen) to .01 or less would increase the speed of comprehension by twenty times. Thus a speed of 200 words per minute at 80 per cent comprehension corrected through training to .01 duration of fixation, comprehension held constant, would produce 4,000 words per minute. If the span of recognition could be increased from one to three words, still holding other factors constant, 12,000 words per minute would result. With the data and the film record before him, the students gets an idea of what might be done. The writer has found this a very effective motivating device for six years, although he acknowledges the "catch" in the phrase "holding other factors constant."

Emphasizing the grade placement and age placement in reading, vocabulary and spelling seems to be effective as a motivating device as well. To tell an interested college student that on the diagnostic tests he performed about as well as the average person in the sixth month of the seventh grade is a very pointed but challenging thing.

To tell students "this is the way you performed," then explain and demonstrate how one can change to perform as a college student should is quite motivating.

A demonstration of duration of fixation and span of recognition with a tachistoscope set at the exposure for 1/100 of a second also proves effective. Use digits. First three, then four and five. Stop at five. The student realizes he can see five digits in 1/100 of a second and that he can repeat them. Then use phrases beginning with simple two-word phrases, and proceed to longer ones. The main purpose is to show each student that he *can* do it.

A controlled reading exercise with film or accelerator will show the student that he can actually comprehend, using span reading with a short fixation time in the more normal reading situation. Actually, the motivation consists of proving to the student there is a more efficient way of reading than he has been using, and that even he *can* do it.

Some people feel they can't read fast and comprehend. Use a very simple selection, third grade level if necessary, project on a controlled reader at two or three hundred words faster than the diagnosed speed and give a comprehension test. One or two of these films usually proves to the student he can go faster and still comprehend. The point is then made that if one really wants to improve, providing himself with a higher level vocabulary at quick recognition, as fast as he recognized these simple words, may help. Using a twice weekly speed comprehension test with running graph of speed and comprehension keeps the student motivated as he sees himself fluctuating up and down, or notes steady improvement. The goal is always to beat the last score.

Other factors must be included. The job of independently increasing vocabulary through more effective spelling and study of words must be demonstrated. One way is to take some word suggested by the students from their own texts. Have them pick an unfamiliar word. The instructor may write the word on the chalk board and demonstrate how to attack it through roots, prefixes and suffixes, derivation, synonyms and antonyms. It might be well to demonstrate syllable division and syllabic pronunciation.

Some colleges offer credit for reading courses. Where this is done, grades may become a strong motivating device. As soon as diagnostic data have been explained and discussion completed, the instructor may explain what level of functioning on post-testing is required for each letter grade. It is the writer's experience that volunteer students are more interested, however, in progress from diagnosed to post-test level, without regards to grades.

In summary, present the personal facts about each student's reading habits, prove through simple demonstrations that he himself can change, present the challenge and means of doing so and place total responsibility on him.

The writer recently made a study to determine what colleges and universities were doing about selection and motivation of students. The purpose was to determine current practices in connection with testing used, bases for selection of students to participate in college reading programs, and methods of setting goals with students on the first day of instruction and the first few weeks of instruction. To obtain information upon which it is based, an appropriate questionnaire was used. During the month of November, 1958, one hundred fourteen institutions offering reading services were contacted in thirty-six states.

Bases for Selecton

All reading programs use testing as bases for selection of students to participate, except those whose courses are entirely voluntary. The latter, however, use testing after students are enrolled.

The tests used, in order of frequency mentioned are: Cooperative English (mentioned 32 times), American Council on Education Psychological (mentioned 14 times), Diagnostic Reading Tests (mentioned eight times), Nelson-Denny Reading Test (mentioned seven times), Iowa Silent Reading

Tests (mentioned five times), and a number of tests mentioned less than five times each.

Completely voluntary enrollment

Under this policy, students are made aware of the availability of reading services and are invited to participate. Students place signatures on waiting lists; are recommended by friends, teachers, or student guidance services; enroll on recommendation of people who have taken the course, and on recommendation of counselors. No tests are given before enrollment. Generally, any student who makes application, regardless of classification or ability, is permitted to enroll. Some clinics with limited capacity take first applicants until all space is gone. Sixteen institutions reported this policy. They are in the large total enrollment university class (10,000 to 26,000 enrollment category) with three exceptions: 1600, 2400, and 3300 total enrollment. Typical statements of policy follow: "Those who ask for help—on a first-come basis." "The basic program consists of voluntary, non-credit courses which are listed in the schedule of classes each semester. Students enroll for these sections just as they do for regular classes." "Self-referral; students who are interested in improving their reading refer themselves to the Reading Improvement Program." "Participation is entirely voluntary. Services are available at no charge to all students regularly enrolled at the university and to faculty members. No attempt is made to coerce students to utilize the service on the basis of lack of reading skill. The services are used by excellent readers to increase reading efficiency as well as by poor readers who desire remedial help. Participation in the reading program is the result of the student's desire to improve reading skill."

Tests and Volunteer

Thirty-eight institutions indicated that selection of students was based on testing followed by notification of students of their test results and suggestions that they investigate the services. In these cases, no further counseling is done unless students seek further information. Institutions in this category range in total enrollment from 350 to 10,000, with most in the 1,000 to 5,000 range. Examples of institutions that have adopted this policy follows: At Yale University all freshmen are tested on arrival. The *Yale Freshman*

Year Reading Comprehension test is used. Those in the low quartile are informed of their performance and are invited to attend an eight-week study skills course. In the fall the course is limited to freshmen. In the spring, sections are open to all undergraduates. At Southern Methodist University the *Cooperative English Test* is given to all freshmen. Those falling below the 50th percentile are notified. At Cardinal Stritch College a freshman battery of tests, including the *ACE Psychological, Cooperative English* and *Cooperative Achievement Tests,* is given. Selection is based on a study of the Q and L score difference on the *ACE* and the results of the *Cooperative Reading Tests.* The student is contacted and told of the program. Students wishing to follow through, contact the reading instructor—who checks mechanics with the *Wide Range Achievement* and outlines the course. The student makes the final decision. At Case Institute of Technology all entering freshmen take the *Diagnostic Reading Test.* The results are reported to the students in terms of local norms. The scores are interpreted by the director of the reading laboratory at a meeting at which the laboratory is described. After this meeting, the students are free to volunteer for the program.

Tests and Counseling

Thirty-two institutions reported using tests and counseling as the basis for selection of students. These institutions ranged in size from 950 to 22,000, with a preponderance in the 2,000 to 7,000 class. Here the general policy is to select an arbitrary score on the test used and require students falling below it to report to a counselor. The counselor explains the course and then interprets scores and either suggests or strongly urges—but never requires—the student to enroll. Texas Christian University follows this plan. There, the *Diagnostic Reading Tests* are administered. Freshmen in the lower 35 per cent are recommended to department counselors for registration in the reading course. At the University of Pennsylvania all entering freshmen whose scores on the *Cooperative English Reading Comprehension Test* fall at the 25th percentile or lower, on any part, are asked to come in for conferences concerning their reading and study habits. All students are informed of their scores, told of the course and that they may enroll. At Smith College all freshmen take the Harvard Tests. These are analyzed by the Director of the Reading Clinic, and those which are notably low in comprehension or speed are taken out for further scrutiny. From among these, about 150 names are sent to the Freshman Dean, who notifies each student that it might be wise to take the course in study skills. Individual counseling is done by the director of the reading clinic or the professional counseler, the class dean, or the house mother. The course is not required.

Tests and required enrollment

Twenty-one of the institutions reporting require students to take reading courses as a result of test scores. They fall in the 150 to 2,000 total enrollment class with one exception. Two factors determine who shall be on the list: capacity of the courses and an arbitrarily selected score. Often the latter depends on the former. All who fall below the selected score must enroll in the reading course. Typical of policies in this category are those of Mt. Angel College in Oregon. All students falling below the 30th percentile on the *ACE Psychological* are automatically included in the reading program. At East Central State College in Oklahoma all students scoring below 10th grade level are automatically enrolled in the course titled Reading Efficiency. At Oswego State Teachers College those below the third decile in total reading on the *Cooperative Reading Test* must take the course.

General Comments

In many instances schools that limit their reading courses to freshmen during the first period, in the fall, open the courses to upperclassmen at all other times. In some, the courses are elective at all times for upperclassmen, or are open to upperclassmen only if there is room after freshmen are served. East Tennessee State College reports a study which caused them to decide that those students who make better scores should be taken before those who fall quite low. The study showed that the better students continued to improve, while those at the lower level on the *ACE* tend to stand still or regress after leaving the class.

Setting Goals With Students

Some reading programs set no goals other than improvement. The philosophy seems to be that students who voluntarily take the work want to improve, and this is all that is necessary.

Except in schools where credit is given and/or courses are required, goals are set by students. The most usual procedure is that of interpreting test data, discussing ability in relation to individual scores and explaining the facets of effective reading. A part of this orientation usually is a detailed explanation of the relationship between speed and comprehension, flexibility of rate in relation to kinds of reading, and ways and means to obtain comprehension.

Individual counseling was often mentioned as a means of identifying deficiencies and setting goals to eliminate them. Most programs include periodic speed and comprehension tests, with graphs kept to show progress week by week. Often, data is cited showing the improvement made by previous classes. Accompanying class discussion may include a review of tool-skills essential for college work, and an explanation of attainment in relation to ability. Pacing films are often used to show how rate will increase with practice.

A few programs set specific goals. The most often mentioned follow:

At least double speed and hold comprehension at the 80 per cent level; each student is urged to come up to the 13th grade level and some to go beyond; a goal of five grades of improvement is set with a general objective of two to three hundred per cent increase in speed with no loss in comprehension; doubling of present rate with 90 per cent or better comprehension; scoring at the 50th percentile on future tests.

Often goals set are very general. Here the consensus seems to be that all students want to read faster and comprehend better; hence this becomes a general goal. Others mentioned are: "Increased vocabulary is a frequent goal," "better study skills are considered as possible goals," "instructors help students set realistic goals in rate and comprehension," "goals are set in individual conferences according to the purpose for coming to reading service as expressed by the student," "clarification of lifetime objectives and their relation to good reading," "explanation of test results and standing when compared to successful students (successful in general college work)," and "students are merely told what the course involves and are urged to think in terms of realistic intermediate goals."

Those programs that give credit and/or require students to enroll use letter-grades as goals. Such grades are often based on amount of progress made as shown by pre- and post-testing. This is done in one of two ways. A set amount of progress is required to obtain each grade, or a specific amount of outside work must be done with minimum speed obtained and minimum comprehension reached to earn a given grade.

First Days of Instruction

Where data from freshman testing data or other regularly given tests are not used as reading diagnoses, first days of instruction are used to obtain such measures. In general, tests used are those heretofore indicated. Testing is followed by an explanation of scores and of the real meaning of reading a study improvement, plus a description of the course as it is outlined to produce such improvement. Class discussions form a prominent part of this period. Such items as the student's responsibility, proper use of equipment and materials, selling the student on the worth of the course to him, attitudes in relation to reading effectively, and the philosophy and psychology of the reading process are discussed. A limited number of programs begin with reading accelerator practice and reading films. These are in the minority, however. Time is also given here to goal setting. In many cases the first few days consist of individual conferences, during which goals are set. Structuring of responsibility is emphasized to be sure students know that if improvement is made it will be their doing.

Summary of Typical Responses to Each Question Organized Into Three Categories

The Large University (10,000-plus enrollment)

1. Self-referral. Participation is entirely voluntary. Freshmen are given preference first semester. Classes open to all undergraduates second semester. No attempt is made to coerce students to utilize the service. Students enroll in these classes just as they do for regular classes. The Educational Counseling Center, Admissions office, academic advisers and other faculty members frequently refer students to the classes.

2. Goals are set through explanation of test scores both in group discussions and individual conferences, and

in keeping with the purpose for coming to the reading service as expressed by the student.

3. First day of instruction. An introductory lecture on the purposes, methods and administration of the course.
4. The first two or three weeks of instruction. Two hours a week of group meetings, one hour a week of individual practice, and at least one counseling interview. Group meetings consist of information giving and practice of the following: reading rate and various types of comprehension, vocabulary, skimming, concentration, study techniques, habits and attitudes, note taking, critical reading, and skills in examination. The emphasis is on reading for study purposes. We are not very much in favor of machines. We think of our work as counseling and teaching.

The Medium-Sized Institution (Approximately
5000 enrollment)

1. The Counseling Center selects our students to go into developmental reading sections of Written Communications I and II. They select students through the use of the *ACE*, and the *Cooperative Reading Tests.* The first criterion for selection is a difference of 20 or more percentile points between the Q and L scores on the *ACE*, the Q score being higher. They then take a look at the reading tests. If no one of the true scores on speed, vocabulary, or level of comprehension is below the total scores of the *ACE* he is a candidate for our reading program. We also take a look at personality tests. Students who make high scores on the *EPPS* in abasement usually have a reading problem.
2. The students, for the most part, set their own goals. 1. Increase speed; 2. Increase vocabulary; 3. Increase level of comprehension; 4. Increase English skills; 5. Social verbal communications.
3. An explanation of the course and lecture on the relationship between speed and comprehension, the use of flexibility in speed for various types of reading, study techniques, how to increase vocabulary, etc.
4. We establish classroom routines that include: speed reading, testing over material read, keeping graphs of

progress, introduction to tachistoscope, learning to take some responsibility and be less dependent on teacher. Easy materials are introduced, materials that deal with adventures out of doors, etc. Later, college texts are used.

The Small College (Approximately 1,000 enrollment)

1. The Reading Improvement Service is open to all students who wish to take it, regardless of their present level of reading ability. However, the freshman class is given the *Cooperative English Test,* among other tests in the entrance test battery, and the reading part of the *Cooperative English Test,* Single Booklet Edition, Higher Level, is used to help to screen students who are urged to take work in the Reading Improvement Service. We also receive referrals from advisers and other faculty members. Once the student is enrolled in the Reading Improvement Service we give additional tests for further diagnosis, including the *Diagnostic Survey Test,* and the *SRA Reading Record.*
2. We acquaint each of the students with the results of his tests and try to show him where he needs to improve, whether it be in speed, comprehension, vocabulary building, or a combination of these. Often definite goals are used in terms of set figures in speed and 90 per cent level of comprehension.
3. The first day or two of the course consists of further testing for purposes of diagnosis.
4. After the initial period of diagnosis and counseling, all of our time from then on is devoted to improving the student's speed and comprehension. We use a number of procedures, including the following:
   1. The Controlled Reader (Education Developmental Laboratories)
   2. The Keystone Flashmeter
   3. The SRA Reading Accelerator
   4. The Tachitron (individual tachistoscope)
   5. The SRA Reading Laboratory (High school and college level)
   6. Unpaced reading checks in suitable texts
   7. We also use mimeographed materials of our own making

A Way To Use Reading Pacers

BY HARRY W. JOHNSON

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There have been too many statements for and against the use of machines in the improvement of reading. Both the gadgeteers and the anti-gadgeteers make serious semantic mistakes which confuse the issue. But the mistakes they make are different. The anti-gadgeteers tend to lump all machines together. Then, on the basis of the poor results or lack of results or unfortunate results following the use of one type of equipment, they condemn all kinds of mechanical devices, possibly excepting clocks. The gadgeteers, on the other hand, tend to lump all *users* of machines together. Then, because one reading improvement worker (who doesn't say what his method is) gets only mediocre results with a given machine, the gadgeteers—and others as well—decide that the *machine* is only moderately effective. This is about as sound as deciding that the baseball bat is only moderately effective because the man you happen to observe is hitting only .190. The effectiveness of a reading improvement device will vary greatly, depending upon who is using it. And the greatest part of the variation will be due to the method which the user employs. Because of the importance of the *method* of using such equipment, this paper has been prepared to present a description of one successful method of employing the widely used devices known as reading pacers.

Unfortunately, space does not permit discussion of the reasons for the various items of the procedure nor even descriptions in the fullest detail. For such discussion and description, plus recommendations on related aspects of such a program, the reader is referred to *A Manual for Reading Improvement.*[1]

The heart of the method, of course, is the student's practice procedure. Consequently, the present paper will be built around a description of the two phases of that procedure:

Phase I—Reading a book of light fiction in the machine for 12 or 13 minutes, and

Phase II—Reading a 1,000-word exercise and answering a few objective questions over the material.

In the interest of the clearest possible visualization from that description, a brief explanation will be given of the kind and amount of equipment and space necessary and the nature of the materials required.

But first, a word about reading speed. In the improvement of reading, speed is not everything. But attitude *is* almost everything, and to improve a poor reader's speed is to improve his attitude. Then, not only does the reader know that he can improve his rate and, indeed, has done so, but also he knows that he can improve his reading in other respects. And he is ready and eager to get at it.

Equipment and Space

The minimum of mechanical equipment for a program of the kind described in this paper is a clock and a reading pacer. This much equipment, in a room open nine hours a day, could accommodate twenty-seven people. The machine should be assigned to each person for twenty minutes. Thus, three persons may be assigned to the machine each hour or twenty-seven persons in nine hours. Since each person should put in three widely spaced practice sessions per week, the schedule set up for Monday is repeated on Wednesday and Friday. No use is made of the machine on Tuesdays and Thursdays, excepting to make up sessions which have been missed.

Each person has the machine reserved in his name for twenty minutes, Monday, Wednesday, and Friday. However, he doesn't use the machine for twenty minutes. He uses the machine for twelve or thirteen minutes to carry out Phase I of his practice session and then moves to another chair for Phase II. This makes the schedule of the machine workable. Thus, extra table space and a second chair are necessary for each machine to be properly used.

The machine to be used may be any pacer with a range of speeds from around 100 words per minute to around 2,000 words per minute. At least one manufacturer (Stereo Optical Company of Chicago) will supply a machine with a maximum twice that high, which is necessary with about two or three students out of every hundred, and it would seem especially important to challenge the most capable students.

Whether a program involves one machine or several, one will be necessary for every twenty-three or twenty-four students in a nine-hour day. Some practice hours are unpopular, and the machines will stand idle during certain times of the day. Full utilization is very unlikely.

So long as the space to be used meets ordinary standards of lighting, ventilation, quiet, etc., it may be located anywhere —in the back of a classroom, at one end of a library, in the corner of an office, or in a room by itself. If the program is large enough so that half a dozen machines or more are involved, the space should include a bookcase and a desk for the supervisor in addition to the furniture and equipment already mentioned.

Materials

During each practice session, the student uses two kinds of materials, narrative material for use on the machines (Phase I) and expository material for use after the practice on the machines (Phase II).

The prime requisite to be satisfied in selecting a book of narrative material is that it be easy enough for the purpose. At least ninety-nine per cent of the running words should be within the student's sight vocabulary. Thus, on an ordinary page, all but two or three of the words must be in his sight vocabulary. This means that he should recognize them instantly, without study, analysis, or hesitation. Books with more than an occasional bit of dialect, foreign words, technical terms, etc., are unsatisfactory by this criterion. The student should be directed to read at least a page or two to himself, making sure to identify every word. If more than two or three words on each page (depending on the number of words per page) cause him to stumble, hesitate, stop, skip over the word, etc., a different book should be sought. Ideally, there should be no unfamiliar words in material to be used for this purpose. From the examiner's point of view, the student should seem to read the material without effort or tension. Betts' concept of the "independent reading level" has been described and adapted in a number of places[2] and it should be thoroughly understood and applied in selecting appropriate practice materials.

The second requisite to be satisfied in selecting practice material is that it be interesting. However, it should not be "as interesting as possible." It should be as easy as it can be and still be interesting, but it should not be so interesting that it compels the reader to stop and dwell on it, to re-read a particularly delightful passage, etc. An optimum should be sought, a level of interest low enough to obviate the practices just mentioned but high enough to engross the reader, to pull him along to see what happens next and to serve as a governor on the reader's speed. Without such a governor, speed becomes meaningless, and the reader may simply "flip pages."

Finally, the narrative material should be a novel, not a collection of short stories or even a condensed book. The student should not have to switch authors or styles or even plots for several weeks' practice.

For expository material, the writer has tried several of the many different booklets available, but he has always returned to Strang's two booklets, to use the high school booklet first and then the college one.[3, 4] These two booklets, in this order, seem to be the best materials for the purposes of such courses as this paper describes, whether for high school pupils, college students, or adults.

Procedure

As previously indicated, the student's procedure in practicing consists of two phases:

Phase I—Reading a book of light fiction in the pacer for twelve or thirteen minutes, and

Phase II—Reading a 1,000-word exercise and answering a few objective questions over the material.

The two phases should be carried out in the order indicated, and the second should immediately follow the first.

The details of the procedure are extremely important. Almost invariably, if a student is not making satisfactory progress, one will find that he has not selected his material properly or that he is not following the procedure as it has been presented to him. Consequently, each phase will be described below in considerable detail, and, after the procedure has been described, certain minor aspects of the procedure will be discussed more fully.

The student enters the laboratory with a pen or pencil and a practice booklet. He gets his book from the shelf, takes his "Record of Progress" from the file, and goes to the machance which is reserved in his name.

At the machine, ready to begin Phase I, he glances up at the clock to note the approximate time he is beginning practice on the machine and flips the switch to "On." He then sets the machine at its slowest possible speed and puts in the book. He reads a few lines, and, if the machine is not covering up the material as fast as he is reading it, he sets the speed up a little. This should be done without looking at the setting. He then reads a few more lines and sets the speed up again. He continues to speed up the machine every few lines until the machine is going at just as fast a rate as he can possibly keep up with. This is his "frantic maximum" and it should be established within two or three minutes. Then, without looking at his machine setting or changing that setting, he practices at his "frantic maximum" for ten minutes. On some pages he may have to push the occluding plate up a little bit if it "runs over" him or, on the other hand, he may beat the machine to the bottom of the page. Nevertheless, he should complete the full ten minutes of practice without changing the speed setting or looking at it.

When he has completed ten minutes of practice at the "frantic maximum," he turns off the machine and looks at the scale or dial. From that he computes his speed and records on his Record of Progress (described below), the date, the name of the book, his speed, the approximate amount of time spent on the machine and, if he's wise, the number of the page he reached. This all takes less than a minute.

To carry out Phase II, he moves to a chair with a clear table space, returning his book to the bookcase on the way, and does the next practice exercise in his booklet. He begins by reading the introductory statement the author of the booklet provides above the title of the 1,000-word article. He then notes, *on paper*, the exact second when he plans to begin reading the article (for example, 8:23:00). It is much the simplest plan to begin with the second hand exactly on twelve, even though he may have to sit and wait for the second hand to get there. When the second hand reaches the predetermined point, he begins reading and reads to the end of the article. The instant he finishes reading the article, he looks up at the clock and notes, just above his starting time (for easy subtraction), the exact second he finished reading. He then answers the objective questions at the end of the article. To determine his speed, he subtracts his starting time from his finishing time and then looks up his speed in the table in the back of the second booklet. Finally, he checks his answers to the objective questions against the key on the bulletin board and enters his speed and comprehension scores on his Record of Progress.

On the way out, the student drops his Record of Progress into a box on the bookcase.

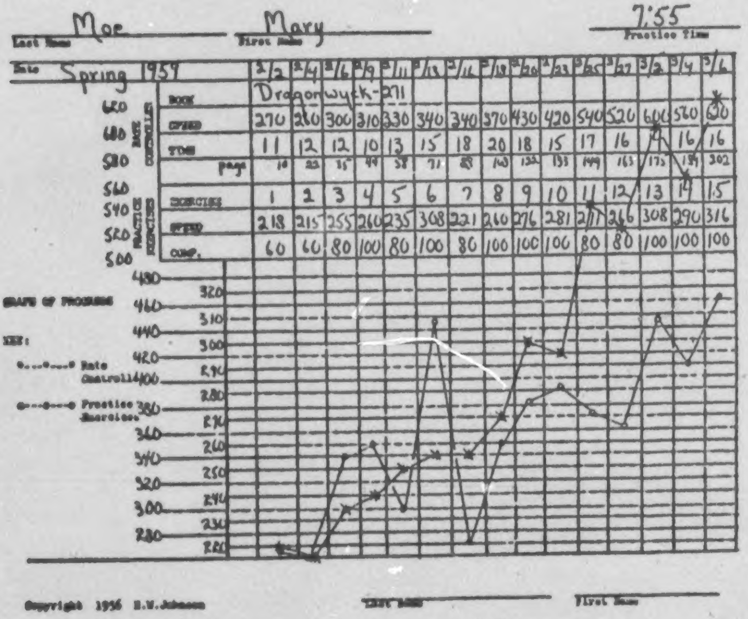
The foregoing description mentions some details that require explanation. The "file" from which the student takes his Record of Progress may simply be an open box containing manila folders marked and arranged according to the various practice times (e.g., 7:55, 8:15, 8:35, etc.). In order to help the student remember not to look at his machine setting, some simple shield can and should be devised to hide the dial. The system of scoring the comprehension questions should be so devised that a perfect score will be "100." A few students will complain that the occluding plate or curtain of the machine bothers them. A simple solution which almost always satisfies the student is to suggest that he stay a half inch or an inch ahead of the plate or curtain. This does not affect his rate.

The Record of Progress

The Record of Progress is a very important aspect of the program described herein, and it differs sharply from the corresponding records kept in other programs. The difference is extremely important. A sample of the Record of Progress, properly filled out, is presented on the next page.

Each column in the Record of Progress represents one practice session or partial session. Every entry below a given date should represent work done on that date.

After the student has made six or eight entries, the supervisor should put in a scale for the lower half of the page. The size of the numbers and the interval between them should be very carefully tailored to the student's needs and abilities, striking a balance between, on the one hand, dramatizing and encouraging every improvement and, on the other hand, presenting a realistic challenge. The interval necessary for this purpose will vary from five (which will barely reveal the progress of some students) to one hundred (which will barely challenge others). The scale should be written in at the ends of the lines which protrude into the space on the left-hand side, from the bottom of the page to the top of the lower half. Later, if the student makes better progress than was anticipated, the scale may be extended to the top of the page (as illustrated). Sometimes, a separate scale needs to be drawn for the work in the practice booklets. When that is necessary, the numbers for this second scale should be written at the ends of the lines which do *not* protrude into the space at the left (also illustrated). In choosing the scale, the size of the numbers and the interval between them should be chosen in such a way that the line representing the student's progress will move from the lower left-hand corner to the upper right-hand corner of the lower half of the page. Too small an interval is better for the morale of the student than too large an interval. Obviously, the selection of the scale should be done by a trained supervisor. Less obviously, but just as truly, all of the graphing should be done by the supervisor himself. The student's reaction to his own graph in large part determines his progress, and the wise supervisor will keep careful control of this delicate and powerful instrument.



Moe
Last Name
Mary
First Name
7:55
Practice Time

		3/2	3/4	3/6	3/9	3/11	3/13	3/16	3/18	3/20	3/23	3/25	3/27	3/2	3/4	3/6
Spring 1959	BOOK	Dragonwyck-271														
RATE CONTROLLER	SPEED	270	280	300	310	330	340	340	370	430	420	540	520	600	560	620
	TIME	11	12	12	10	13	15	18	20	18	15	17	16	14	16	16
	page	10	22	35	44	58	71	88	103	122	133	149	163	175	189	202
PRACTICE EXERCISES	EXERCISES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	SPEED	218	215	255	260	235	308	221	260	276	281	277	266	308	290	316
	COMP.	60	60	80	100	80	100	80	100	100	100	80	80	100	100	100

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Last Name

First Name

The careful utilization of the Record of Progress, taking account of all its psychological effects upon the student, as described in the foregoing paragraphs, epitomizes the proper approach to every aspect of the program. If the spirit of this discussion has been caught, the supervisor will deal with each student as a distinct individual and as one highly sensitive to the sympathy and understanding, the encouragement and challenge, the confidence and faith that characterize good teaching everywhere.

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[1] *A Manual for Reading Instruction*, University Bookstore, University of Omaha, Omaha, Nebraska, ($1.00 plus 15c postage).

[2] Betts, Emmett A., *Foundations of Reading Instruction*, American Book Co., New York, 1946, ch. 21.

[3] Strang, Ruth, *Study Type of Reading Exercises*, (revised ed.) Bureau of Publications, Teachers College, Columbia University, 1951.

[4] Strang, Ruth, *Study Type of Reading Exercises—College Level*, Bureau of Publications, Teachers College, Columbia University, 1951.

The Role of Reading Films

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History of Reading Films

History of Reading Films

In 1937, Dearborn, Anderson, and Brewster, aware of the importance of phrase reading and the limitations of the existing tachistoscopic and worksheet presentations of such materials, initiated research on a method of presentation that would include the advantages of the earlier procedures yet eliminate—or at least minimize—their disadvantages. The compromise agreed upon was motion picture film. Films were not only suitable for increasing the span of recognition and reducing fixation time, which were the prime purposes of the tachistoscope, but could also successfully habituate phrase reading and control eye movements, the goals of worksheets. Additionally, the films would eliminate the low transfer effect from tachistoscopic methods to normal reading situations by making the reading more realistic through the use of running text, an integral part of the worksheets. Finally, the inability of worksheets to adequately control fixations would be eliminated by using the flash method of presentation. Such was the reasoning of the pioneers in reading films.

In 1940, based on this rationale, Harvard University produced the first usable set of reading films. At best, these films were crude attempts at presenting printed material in motion picture form. Yet, in their favor, they offered empirical proof that this new media possessed the potential that none other did: the way was now clear for modification, experimentation, and application of the new technique. Experimentally, these original films served as models for all others. As previously noted, they were far from flawless. Subsequent designers have justifiably pointed out weaknesses in the series and moved toward correcting them in their own films.

For example, in 1948, Stroud and Eller of The State University of Iowa devised the first—and to date, only—reading films designed for high school consumption. Their dissatisfaction with the "stuffy" film content, the poor comprehension questions over the film texts, the lack of any built-in speed control, and the unnatural situation of reading each prhase in isolation without the benefit of background material of any sort as found in the original Harvard series guided them in their modifications. Not only did the *Iowa High School Reading Films* contain selections of interest to high school students, but they were written at a tenth grade vocabulary level, contained far superior comprehension questions, had film speed built into the films themselves, utilized a faint background of words around the phrase to be read, were designed for sound projection (most schools were then equipped with sound projectors rather than silent), and had available adequate supplemental reading selections and questions.

During the same year, Perry and Whitlock of Harvard University, also concerned with the limitations of the first Harvard films, prepared a revision. In it, most of the flaws of the original films were corrected: passage content was made more interesting, but still remained suited only to sophisticated college sophomores; comprehension questions were greatly improved; speed was built into the films and no longer had to be controlled by the projectors; and the complete page of print was visible, though only one phrase at a time was readable. These two series—*Iowa High School Reading Films* and *Harvard Films for the Improvement of Reading, Second Series*—enjoy the bulk of the reading-film market today for their respective levels.

Purposes of Reading Films

Before exploring one or two of the possible methods of incorporating reading films into a high school, college, or adult reading program, it may be advantageous to discuss briefly the goals of films. Generally speaking, there are seven ways by which they can be utilized to help an individual improve his reading rate: by (1) decreasing the number of regressions he makes; (2) reducing the length of his fixation period; (3) increasing his span of recognition; (4) perfecting his return sweep; (5) forcing him to make more rhythmic saccadic movements; (6) decreasing his subvocalizations; and (7) increasing his motivation to read better and faster.

By design, the better film series force the reader to inhibit his regressive eye movements by having each phrase disappear from the screen immediately after it is presented; consequently, regressive movements are futile and go unrewarded. Similarly, the fixation period is reduced as a result of the short exposure time of each phrase; the reader is not allowed to contemplate each phrase for an indefinite period, but must move on to the next immediately. Also, the span of recognition is extended by the same rapid appearance-disappearance technique of projection of the phrases; since the exposed phrase is visible for such a short period, only one fixation on each is possible and the reader is forced to read by phrases rather than word-by-word. Because the brightness of the exposed phrase is in such contrast with those in the background, the reader's eyes are naturally attracted toward it; as the result of following the lighted portion of the screen, the return sweep tends to become more accurate and eye movements tend to be more rhythmic. As the films increase in speed, the reader eventually finds that he can no longer say each word to himself and still keep up with the exposed phrases; so, his tendency is subvocalize diminishes. Finally, films serve the purpose of being exceptionally good motivating devices in that they represent a new and interesting approach to the learning of more efficient reading skills, are frequently identified with movies (who dislikes movies!), and most important, show the reader that he can read faster with no loss in his comprehension.

Limitations and Justifications

The films, of course, are not without their critics. Some have claimed that individualization of instruction cannot be effected by using this type of mechanical device; others grant that although the films do help in habituating rhythmic eye movements, good readers do not read rhythmically, and that one's speed can be only minutely increased when this type of reading is done; and it has even been claimed that reading films provoke headaches.

In response to the criticism of the inability to individualize instruction, it must be acknowledged that this is, perhaps, the most justifiable objection to the use of films. Although individualization is not impossible, it can—and is—being accomplished at many universities which employ films in their accelerated reading programs. One approach to individualization is to divide the class into groups at the start of the program. The slower readers can begin with the first films and progress upward while the faster readers can begin with one of the more advanced films. Whereas, the slower reading group does not see the last few films, the faster reading group does not see the initial ones but proceeds systematically through the latter part of the series. Since, in many cases, the slowest readers never attain the top speed of the films, no damage results from their not progressing through the whole series. Also, in that most of the films can be shown at both sound and silent projection speeds, the slower group can begin with the slower silent speed and work through the sound speed. This procedure would allow for the utilization of both the slower speeds for the slower readers and the faster speeds for the faster readers, thereby accommodating most viewers.

A second approach to individualizing instruction is to select from each film those words that are thought to be the most difficult or unusual. These words may be written on the chalkboard and brought to the attention of the students. It may be suggested that if the words are not easily recognized or if their meanings are not known, the students should look them up in a dictionary and become familiar with them. If this is done, say the day before showing the film, it can be assumed that word recognition difficulties will be minimized, thereby enhancing the readers' ability to "keep up" with the filmed phrases.

A final means by which the slow reader may be accommodated is by presenting the preceding day's film prior to showing the scheduled film. This review film would serve as a "warm-up" and would set the "mental stage" necessary for viewing the films. As soon as this warm-up period is completed, the scheduled film may be shown.

In answer to the criticism that good readers do not read rhythmically, the films still appear to be justified in their attempts to teach rhythmic eye movements. For, once the reader perfects this type of reading, he can, in most instances, read effectively at 500 words per minute. Once this is accomplished (and this alone often means the doubling of his previous rate) he is then in the position to experiment with new ways of reading at more rapid rates. As long as an average rate increment of between 50 and 125 per cent is achieved by this method of teaching, the technique is justifiable.

The final criticism of films—that they cause headaches—warrants only token consideration. Although there is some indication that eye watering and squinting may occasionally result from film viewing, it is extremely rare for a student to complain that watching the films has caused headaches. In the preparation of this article, one of the authors asked several classes what they considered to be the disadvantage of the reading films, and even when primed with the suggestion that headaches might result from the viewing, none of the students indicated that this had been a problem. When questioned about the occurrence of this problem, the director of a large university reading laboratory replied that only one of six thousand students in the past eight years had complained that watching films resulted in headaches. If any sizable number of students in a reading class were bothered by headaches, it would indicate that something was grossly wrong with the procedure, and that the instructor was failing either in the individualization of instruction explained on the preceding pages or in some aspect of the mechanics of projection, which will be considered later in this article. It is, of course, possible—even likely—that some series of reading films are disturbing to readers' nervous systems while other series are not. One series which neither of the authors has used extensively would seem to be quite annoying because of extreme contrast between the print and the background.

Classroom Procedure

In any discussion of the use of reading films it must be understood at the outset that this method of presentation comprises but one portion of the total program. That is, films are not designed to replace pacer or accelerator practice, tachistoscopic work, or workbook exercises (four of the five current film series make available supplemental reading materials to be used with their films and the fifth recommends that such materials be used); rather, they are to be used in conjunction with these other devices in order to increase the efficiency of the total program and make its goals more readily attainable. The remainder of this section will be devoted to a description of one means by which films may be incorporated into a high school, college, or adult reading program.

In order that reading films may contribute their utmost to the program, certain requirements in the physical environment of the classroom must be satisfied. A good sound projector is the first requisite. Regardless of the qualities inherent in the various film series, if their projection is not adequate they will frustrate and irritate the students and otherwise detract from the general efficiency of the total program. The bulb in the projector should not be less than 750 watts, so that brightness will be maximal. Prior to each showing it must be assured that the lens is clear and unscratched, for any imperfections in it will distort the projected image.

Secondly, although the room in which the films are to be shown need not be in complete darkness, conditions should be such that streaks of light do not fall on the screen or the viewers. "Black-out" shades will aid in eliminating any extraneous light.

Thirdly, the screen must have a good surface and should be so situated that it is on a perpendicular plane to the axis of projection. If any part of it is closer or further from the projector than any other, the image will be out of focus. Further, care should be taken to assure that none of the corners of the screen curl up. If this happens, the image will be difficult or impossible to keep in focus. One method of protecting against this is to tie the corners of the screen down during the times the films are shown.

Finally, the seating arrangement within the room should allow each viewer a clear line of vision to the screen. If the chairs in each row are staggered, most of the students will be able to see all parts of the screen with a minimum of moving.

Once the foregoing requirements have been met, the way is clear for incorporating films into the reading program. The procedure to be described is one that has been successful in training students to read at more efficient and adaptable rates.

During the first class period, the introductory film which accompanies the series may be shown. In it, the non-physiological causes of slow reading, the desirability of more rapid reading, and some of the means by which poor reading habits can be replaced by better ones are explained. Also included are excerpts from some of the forthcoming films in the series. It is worthy to note that the introductions to both the C-B and Iowa films can be used in programs not utilizing films. Their representations of reading are both accurate and enlightening. (The introductions of the other series are devoted primarily to excerpts of their own films; consequently, they are not suitable for use in non-film programs.) After the film is shown, the teacher may encourage questions from the class over the content.

Before showing the first training film to the class, the teacher should select from it any words that are difficult or unusual. These should be written on the blackboard and the students' attention should be directed to them. It may be explained that the words are the most difficult ones in the next film, and that if anyone is unsure of the meanings, he should copy them, look them up in a dictionary, or otherwise become familiar with them. Sometimes the instructor may develop word meaning when presenting the difficult words. It might also be explained that unfamiliarity with certain words is one of the causes of regressions, long fixation periods, and word-by-word reading. (Since the class has just seen the introductory film and asked questions about it, they should be able to recognize the meanings of the above terms.) It can then be mentioned that such a list of words will be written on the board each day and will be selected from the film to be shown on the following day.

At the beginning of the second day of class, the first film is to be shown. Although no introduction is necessary, it is advisable to mention the title and speed of the film. Immediately following the film, the students will answer the comprehension questions based on it. Since this type of reading is a new experience for the class and because students initially tend to be more aware of their eye movements than of the film content, the film should be shown twice. After the second showing, time should be allowed for each student to change any of his answers that he feels are wrong. The correct answers should then be provided.

On the next and all subsequent days, the class period should begin with the presentation of the previous day's film. The purpose of this, as noted before, is to re-orient the students to film-reading and to make the transition to the faster film easier. Since comprehension over this film had been checked on the day before, it will not be repeated. The current film can then be shown after the warm-up, comprehension can be assessed, and the film can be shown for the second time. According to students participating in such a program, the second showing of the film helps them not only to better understand the content, but also to concentrate less on their eye movements and more on comprehension. Consequently, rhythmic movements become a means to an end rather than an end in themselves. These three presentations consume approximately twenty minutes of the class period.

After the films, the class can be divided into two groups, one containing the slower readers and the other the faster readers. The slower group will be given the timed reading selection first, while the faster group receives tachistoscopic, accelerator, or other practice. The procedure is then reversed for the two sections. It is obvious that many variations of this presentation are possible.

In this type of reading program, as in others, motivation is at least as important as the teaching materials to overall improvement. Individual and class graphs, on which are plotted the reading rate and comprehension scores for each of the films or reading selections, are especially suited for programs that utilize films. Their merit lies in the fact that they provide empirical evidence that as reading rate increases, comprehension usually does not decrease, and often improves.

On the following page is an example of a simple graph which may be used. It will be noted that two separate graphs —one for reading rate and one for comprehension—are used.

In order to accommodate the different reading rates in the class, it is best to predetermine the rate for each student by either a reading-rate test or a silent reading passage. Each individual will then subtract fifty words a minute from this value and begin his graph with the resulting figure. Finally, the graph will be numbered upward from this point at fifty-word intervals until each of the lines on the extreme left-hand margin contains a rate indicator. Generally, this range is broad enough to contain any improvements the student will make.

The graph on which comprehension scores are recorded may be numbered according to the percentage of the questions that the reader answered correctly. Most of the reading films employ ten comprehension questions, so that percentages are readily computed by the pupils.

Since the graphs may be used for both the films and timed reading passages, a legend for distinguishing the two is included beneath the graphs. A graph for the films is less important than a graph for the timed selections, since the reading of the films is largely beyond the control of the students.

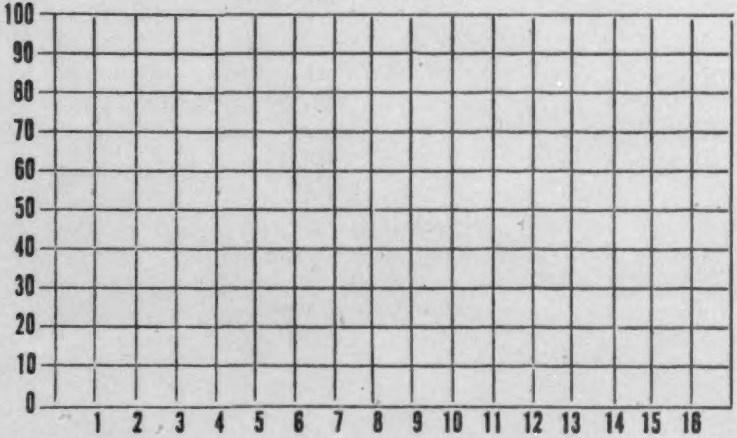
As an added incentive for the students to increase their rates, the teacher may wish to construct a class graph which is merely the average of the individual rates and comprehension scores. Naturally, these should be posted so that the students can readily compare their results with the class average.

Name... **Age**....... **Major**...............

Class.............................. **Instructor**..

Reading Rate

Comprehension



Film — X

Time Reading — O

Descriptions of Available Film Series

1. *Harvard Films for the Improvement of Reading, Second Series*, Harvard films Service, Harvard University, Cambridge, Mass., 1948. This series consists of sixteen films which range from 180 to 495 words-per-minute. (This range includes both silent- and sound-projection speeds.) Black print is photographed on a white background. The background consists of visible but dimmed and unreadable words. Each phrase is dimmed immediately after exposure. The phrases overlap in that the last syllable of one phrase also becomes the first syllable of the adjoining phrase. (This allows more than 25% of the film text to be exposed twice.) Initial films have five fixations per line and the latter ones have two. Ten good multiple-choice comprehension questions accompany each film. Film passages are difficult and suitable for "sophisticated" college sophomores, juniors, seniors, or graduate students. Good supplemental reading materials (timed readings) are available with the series. An introductory film which contains excerpts of the films is available. $240.

2. *Iowa Reading Films, College Series*, Bureau of Audio-Visual Instruction, Extension Division, State University of Iowa, Iowa City, Iowa, 1958.

   The fifteen films in this series have a range of 260 to 520 words-per-minute when used on sound speed. (They may also be shown on silent speed.) The films use white print on a black background to minimize signs of wear. The background print remains visible yet is dimmed immediately after its projection. A progressive development of speed between films is employed: each film increases twenty words-a-minute above that of its predecessor with the exception of the last three, which increase at ten word intervals. The first five films have three fixations per line, the middle five have two, and the last five have one fixation per line. (These last five films allow each reader to select the number of fixations most suitable to him.) Ten good multiple-choice comprehension questions accompany each film. Fair supplementary reading materials are available with the films. An introductory film which treats causality and remediation of slow reading habits is also available. $175.

3. *Iowa High School Films*, Bureau of Audio-Visual Instruction, Extension Division, State University of Iowa, Iowa City, Iowa, 1950.

   Fourteen films that range from 270 to 447 words-per-minute comprise the series. (Although these films may be shown on silent speed also, the rates quoted above refer to sound speed.) The films use white print on a black background. The background print remains visible but not readable. Each phrase is dimmed and made unreadable immediately after its exposure. Each film requires three fixations per line. Ten good multiple-choice comprehension questions follow each film. Supplementary reading materials are available with the films. An introductory film is available. $125.

4. *Purdue Reading Films*, Film Library, Purdue University, Lafayette, Indiana, 1955.

   The sixteen films in this series range from 188 to 511 words-per-minute on silent speed and 282-766 words-per-minute on sound speed. The films are presented with black print on a white background. The background consists of dimmed yet visible print. Each phrase is dimmed immediately after its projection. Phrase divisions often occur within words. Word endings are intentionally blurred and are reproduced in the succeeding phrase. Initial films require three fixations per line while faster ones require two. (No information concerning price or supplementary reading selections was made available.) Introductory film presents excerpts of the series.

5. *C-B Speeding Reading Films*, C-B Educational Films, Inc., 690 Market St., San Francisco 4, California, 1957.

This series is composed of twelve films which range from 180 to 536 words-per-minute. (These speeds include both sound- and silent projection speeds.) The series uses black print on a white background. Each phrase, after exposure, remains lighted. The films do not employ dimmed backgrounds. Phrases are uneven in length. Comprehension questions and supplemental reading passages are available, as is an introductory film. $246.

The Pros and Cons of Tachistoscopes

BY L. D. GILMORE
Pan American College

Of the three major types of mechanical devices used in speed reading training, the tachistoscope has been in use for a longer period than either reading pacers or reading films. This is explained partly by the fact that the tachistoscope was not designed primarily as an instrument for teaching reading, since many of its early adaptations occurred in psychological experimentation, whereas reading films and pacers have come into existence only with the advent of programs for the improvement of college and adult reading. The tachistoscope's longer history may also be explained by noting that it is really made of two elements which existed separately long before they were combined to form the tachistoscope: a slide projector and a camera-type shutter.

A great many Americans who were in military service during or since World War II remember that tachistoscopes were used to teach recognition of aircraft and naval vessels. The logic behind tachistoscopic presentation in the services is that a man who can recognize a plane or ship from a split-second view of a silhouette will probably recognize the real thing when he sees it.

Most people who think about tachistoscopes at all, think of Dr. Samuel Renshaw of Ohio State University as the worker who has explored the teaching and research possibilities of the tachistoscope more than anyone else. Renshaw acquainted the general public with the tachistoscope several years ago through an article in the *Saturday Evening Post*, and he also demonstrated it on a TV series called *The Search*. Renshaw, however, is fundamentally a psychological experimenter, and many of his explorations have no immediate relation to reading.

Users of tachistoscopes have assumed that these machines affect student readers in several constructive ways: (1) they lengthen the span of recognition, (2) they shorten the reader's fixation time, (3) they instill the concept of reading by phrases, and (4) they provide whatever motivation may be peculiar to mechanical contrivances. Reading instructors are generally of the view that tachistoscope training does help in most of these respects, although many teachers feel that tachistoscopes also have more weak features than pacers or films.

Disadvantages attributed to the tachistoscope include the following: (1) As it is ordinarily used, there is no opportunity to read continuous text, so the reading is unnatural. (2) There is a minimum of good commercial material available for use on the machine. (3) It does not lend well to group instruction because of the vast range of individual differences in visual span and speed of recognition.

Naturally, the prospective tachistoscope user will not be satisfied with a subjective listing of advantages and disadvantages, but will ask what the research has indicated. Probably the best summary of research on the use of the tachistoscope as a reading device is Dr. Roy Sommerfeld's article which appeared in the Third Yearbook of the Southwest Reading Conference (now the National Reading Conference). At the end of his article, Sommerfeld offers his conclusions, which represent the views of experienced reading instructors rather well: "From the results of those studies which employed a control group, it can be inferred that much of the gains in reading achievement reported for the subjects in the reading programs can be attributed to factors other than the training because the untrained students also made significant gains in reading achievement. It would seem that the mere passage of academic time accounts for some improvement in reading. There is a probability that, at the college level, the amount of reading material which the student is expected to cover in a given time is, in itself, a spur to higher levels of reading achievement.

"The principal conclusion to be drawn from this survey of research is that no significant relationship has been found between measures of tachistoscopic span and the measures of reading ability employed. It follows by implication that quick-exposure training, in and of itself, cannot influence the process of reading except as certain secondary factors, such as motivation, are involved."

While considering the advantages and disadvantages of tachistoscopes in speed reading training, it may be worth while to examine the reactions of students. At Texas A & M, the University of Oklahoma and the State University of Iowa, students have indicated, when asked at the completion of the reading course, that they felt that both the reading pacers and the reading films were of more help to them than the tachistoscopic drills.

It is quite probable that both instructors and students have tended to minimize the value of the tachistoscope because in the typical college reading program the machine has not been used to best advantage, especially during the earlier years of its use. In the optimal instructional situation, the tachistoscope is employed for from five to fifteen minutes of drill during a class period. At the beginning of the reading improvement course, the phrases are quite short—just a word or two—and the exposure times are relatively long—a fifth or a tenth of a second. As the course continues and the students improve, longer and longer phrases are flashed on the screen for smaller portions of a second until five- or six-word phrases are being presented at perhaps a hundredth of a second. This would seem to be a very logical way to lengthen the span of recognition and shorten fixation time simultaneously. However, as mentioned earlier, the tachistoscope was originally used for varying types of psychological experimentation, many of which were not directly connected with reading. In these psychological experiments, subjects were trained with various sorts of number and symbol combinations as well as with words. When the tachistoscope began to be used widely as an aid to efficient reading, its users rather unfortunately adopted many of the projection materials which had already been developed for the psychological laboratories. This meant that for several years much tachistoscope training in reading programs involved extensive use of series of numbers and in a few instances, even abstract symbols. This use of numbers, it must be understood, came about chiefly as an expediency, then, and not because anyone rationalized that numbers were ideal for the purposes of reading improvement.

Although number sequences are still used by some reading instructors, there are two rather good arguments against their use. First, the span of recognition cannot be extended to a degree that is of much help in the reading of words, because reading trainees are seldom able to learn to perceive and recall more than nine numbers in a series. Nine digits, of course, occupy a shorter visual span than two average words, yet tachistoscopic training with words usually *begins* with two-word phrases, so number series can hardly help to improve the word recognition span. The other serious short-coming of number sequences is the necessity of observing each number in the series with considerable exactness in order to recall the series. This need for careful scrutiny actually works against the kind of habit formation that the reading instructor is trying to foster. A student who is reading 600 words per minute can see a phrase such as "the yelping hound came running" at a very brief glance, and because of the meaning in the phrase and the familiarity of all the words, he has no difficulty perceiving and understanding the phrase, even though he does not see each letter distinctly. On the other hand, the series "70328" has no general meaning in the reader's experience nor does he recognize it as a familiar combination of symbols, so he must examine it carefully in order to reproduce it. If a tachistoscope were being used as a training device for bookkeepers, the flashed projection of number series would be quite logical, but it can only be expected to work against the goals of a program in efficient reading of prose materials.

If the tachistoscope has been used inefficiently in some reading programs, it has also been used by a few instructors in a manner which circumvents one of the criticisms of the machine—that it doesn't allow for individual differences in the instructional group. Some users of tachistoscopes have installed rows of several small, less expensive machines on a long table or bench, each with its own small screen. In a moderately darkened room, this arrangement makes it possible for a number of students to work independently, each operating his own machine. Of course, this plan calls for the original investment of a sizable sum for the machines and multiple sets of slides or filmstrips.

At Pan American College we use the tachistoscope in several procedures besides the conventional one already described. For example, in teaching students to skim, whole paragraphs are presented on the screen as the projector shutter is held open for several seconds. Student readers are then asked to idntify the main idea of the paragraph. When making these slides, we count the number of words on each slide and calculate the number of words per minute that a student would have to read in order to complete the entire paragraph in varying amounts of time. Each slide then carries a code on the edge which indicates that in a five-second exposure the student must read at, say, 1020 words per minute, in six seconds at 850 words per minute, and in eight seconds at 638 words per minute. While we ordinarily use typical prose paragraphs for these skimming slides, it is possible to provide a bit of motivating humor if limericks or Burma Shave slogans are used in the same way. In another innovation on this approach, we print most of a joke or a long riddle on one slide which has to be read quickly by the student. Then a second exposure provides the punch line or the answer to the riddle.

In order to facilitate phrase reading of paragraphs, we have developed 3¼ x 4¼ slides containing whole paragraphs with faint colored lines or dots at suggested fixation points. It is possible to achieve somewhat the same effect if the slide paragraphs are printed so that there is an extra wide spacing between the instructor-chosen phrases on each line of print.

Early in this article, the very first disadvantage attributed to the tachistoscope was the unnaturalness of the reading, since continuous text is not ordinarily used. In the attempt to avoid this weakness, the Reading Laboratory at Pan American College has developed some elongated slides which contain thirty to forty lines of connected text. These slides are made on celluloid film stock and are the width (4¼ inches) of a conventional slide and eleven inches in length, although the length could vary considerably. Using the regular masking equipment which permits a single line of a slide to be projected at a single time, it is possible to begin tachistoscopic projection with the top line of one of these elongated slides and then move the slide up one line with each successive exposure. In this fashion a continuous article of several paragraphs can be shown, one phrase at a time. This same approach is possible with conventional slides except that only about a fourth as many lines of context can be printed on them.

Admittedly, most of the pedagogic variations in tachistoscopic use would not be feasible unless there are local facilities for making slides or filmstrips. However, the construction of slides is not at all difficult, and even a small-scale audio-visual service can develop some. More important, though, is the conviction of a number of reading instructors that their "homemade" tachistoscopic slides and filmstrips are the best materials they have for flashed presentation.

Extending Comprehension Skills

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In the typical college reading program which lasts no more than a semester, the attempt to improve the comprehension of the college student or adult may as well begin with the emphasis on improving the rate of reading. Ultimately, the degree of comprehension of a reader is a function of the amount of knowledge he brings to the material. Thus, the rapid reader has an obvious advantage, an advantage which increases with time.

As the rate of reading improves, the emphasis should shift somewhat toward developing specific comprehension skills. Comprehension is such a complex phenomenon that one cannot begin to attempt an exhaustive listing of all the separate skills which may be involved. Indeed, it is entirely possible that there are skills which have not even been identified as yet. This need not deter the reading teacher from developing those skills which have been identified and which are necessary to good comprehension.

For instructional purposes it is convenient to divide the comprehension skills into lower and higher order. Those which are included in a list of lower order skills can be thought of as somewhat mechanical. The higher order skills are of a more intellectual kind. However, by their very nature, comprehension skills are thinking skills. It should not be assumed that the word mechanical implies that one can learn these skills without using one's mind. They are all intellectual skills, only of varying degree.

Skills which may be included with the lower order are:

a. Choosing the main idea
b. Recognizing significant details
c. The summarizing skills
d. Direction following
e. Vocabulary improvement
f. Skimming

In the adult or college reading program it may not be practicable to teach all of these skills as adequately as is possible. However, even a small amount of time given to these skills will often produce significant improvement in comprehension, especially among students who have never really mastered these skills.

To develop the ability to choose the main idea, the student begins with relatively simple multiple choice exercises. He is given a paragraph to read, or a whole selection. He is then asked to choose the best statement of the main idea. (Examples of such exercises are: Glock, P. 43 and P. 48; Guiler and Raeth, pp. 97, 98; Stroud, pp. 79-85.) As the student gains proficiency in this type of exercise, the choices are made more difficult, until he is eventually asked to write his own statement of the main idea. (For this type of exercise, see Stroud, P. 92-97.) In many writings there will be disagreement about what the main idea is. Class discussion can bring out the fact that main ideas are not always obvious or clear cut. The student must only be asked to have some reason for his choice. It is well that the student come to recognize the wide differences in quality of writing.

To develop the ability to recognize details which are significant and relative there are several types of exercises available. One such exercise is to take whole paragraphs from current materials and insert irrelevant sentences in them. The student is asked to identify the irrelevant sentences. This exercise is useful because it is relatively easy for a teacher to build as it is needed. The multiple choice exercise is also used to develop this skill. Such exercises ask the student about significant details or ask him to choose statements which have some bearing on the main idea. For instance, he is given a series of statements and asked which ones agree, disagree or are not mentioned in the selection. (See Guiler and Raeth, P. 97; Glock, P. 16 and P. 20.) A different and more difficult exercise is one in which the reader is given a stem paragraph which is followed by several more paragraphs. The student is asked to choose between the paragraphs that support the stem paragraph in some way and those that do not. (See Stroud, P. 98-109.)

As soon as the student has gained a sufficient degree of skill in differentiating between main ideas and the details which support it, he should be asked to practice these new skills by demonstrating some proficiency in outlining. In order to prepare outlines a student must be able to choose the main idea and list under it those details which have some bearing on it. (For examples of exercises in outlining, see Stroud, P. 142; Guiler and Raeth, P. 96 and P. 102; Glock, P. 240.)

Another exercise which will put to use the skill the student has gained in recognizing main ideas and significant details is summarizing. The ability to prepare summaries and the ability to use an author's summaries wisely are important skills for the mature reader. The student is first asked to learn to recognize good summary statements. Suitable exercises are: Glock, P. 195, Stroud P. 79-83. After he has learned to identify good summary statements, the student should be given the opportunity to write his own statements. (See Glock, P. 225; Stroud, P. 92.) If further practice is desired, the student can be given the opportunity to expand summary statements into paragraphs. He can then compare his own expansion with the original. This is a relatively difficult exercise but it can be very rewarding.

Vocabulary improvement is an area of comprehension which it is not necessary to discuss very much here. All the workbooks provide some vocabulary improvement exercises. These exercises include word meanings, word derivations, prefixes and suffixes. (See Glock, P. 152, P. 164; Stroud, P. 120, P. 123, 179-183; Guiler and Raeth, P. 117, 119.) In the college reading program an attempt to instill the habit of word study is more important than the actual number of words the student may learn. It is questionable whether any very significant improvement in vocabulary can take place in a short space of time. Instructors should be primarily interested in fostering in the student a habit of demanding precise meanings.

Skill in direction following would seem to be a necessity in the age of do-it-yourself. However, many students are poorly grounded in this skill. Exercises should be provided for careful reading. The student must come to recognize those occasions when careful reading rather than rapid reading is called for. Actual exercises in direction following can also be given. It is possible that as a student gains skill in the other areas of comprehension there will be some automatic improvement in the ability to read directions with the proper amount of care. (See Glock, P. 140, and Stroud, P. 69.)

The opportunities to put into practice the skill of skimming are many and varied. Adults use it every day in reading their newspapers, looking in the phone book, looking up words in the dictionary, looking for facts in the encyclopedia. Deficiency in this skill will cost an adult many hours of his time in a week. However, the most important uses of skimming are often neglected.

In the primary grades the well-trained teacher makes certain that her class does not read aimlessly. She gives some sort of direction to their reading. This is equally true for the competent high school teacher. She would not think of just assigning pages to read without first giving the student some previous knowledge as to what he may expect in those pages. This is the job that skimming can do for the adult. It gives direction and purpose to his reading. He skims his newspaper to find those things he should read more thoroughly. He skims articles to gain some idea of what they may contain. When he has done this he is automatically calling to mind his previous knowledge about this subject. It may be little or it may be a lot. As has been stated before, the amount of knowledge brought to a subject by the reader is of utmost importance to his comprehension of any material. If he does not bring previous knowledge to mind while he is reading, he learns virtually nothing from the context. Thus the skimming of material will help him to orient his background knowledge parallel with the ideas in the reading material. (For examples of skimming exercises see, Glock, P. 43 and P. 53.) The teacher can, of course, provide the student with many opportunities to skim, using current materials.

The comprehension skills which might be considered of a higher intellectual order than those which have been discussed to this point are all the interpretive aspects of comprehension. If a student does not learn to gain meaning beyond what is literally said by the author, he has hardly begun to comprehend.

The skills included here are:

1. Drawing inferences and conclusions
2. Predicting outcomes
3. Recognizing the tone and intent of the author
4. Recognizing the purpose of the author
5. Understanding semantic devices
6. Becoming aware of one's personal biases

Training in these skills will help to reduce the gullibility, in respect to the printed page, which has heretofore characterized the American public. It is the aim of the college or adult reading program to make the reader more aware of how he reads. A greater sensitivity to how words are used, a slight suspicion of what the author is attempting to do, an awareness of individual biases, greater thoughtfulness in his reading habits in general—these will help a reader to greater maturity and more useful comprehension.

To help the student to recognize implications and to draw valid conclusions he is given multiple choice exercises on his reading in which he is asked to distinguish between conclusions and inferences which may or may not be logically drawn. (See Guiler and Raeth, P. 98 and P. 160.)

Predicting outcomes refers to the ability of the reader to be aware of possible conclusions an author might reach, of ways a story might end or a problem might be solved. The teacher can provide practice in this by merely stopping the student before the author has stated his conclusions and asking the student to state some possibilities. The obvious use of this type of skill is in the detective stories. However, this is by no means the most important. Authors do not always come to conclusions which are valid and it is up to the reader to attempt to decide for himself what outcomes can be within the realm of possibility. Unless he does this he will be prone to accept whatever the author says. Naturally, skill in drawing inferences and conclusions is closely related to the ability to predict outcomes.

The ability to grasp how the author feels about his subject is a great help to the reader in attempting to evaluate written material. It is often easier to sit back and let the author's emotions rule one's own. This is no doubt a good attitude for the reading of fiction. It is dangerous when the reader is trying to become enlightened on controversial issues. (Illustrations of exercises used to help develop this skill are: Glock, P. 63 and P. 224; Guiler and Raeth, P. 110, Understanding Point of View; Stroud, P. 157.) Again improvement in this skill will come about primarily by making the student aware that the author usually does have a point of view which will probably not be explicitly stated but which will be evident to a thoughtful reader.

Authors have various purposes: to inform, to persuade, to instruct, to amuse and a host of others. The reader must be aware of this purpose if he is fully to appreciate what an author is trying to tell him. He must also be aware of it if he is not to be easily taken in by authors whose purpose is not consistent with the reader's welfare. Propaganda, of course, is the classic example of the need for a knowledge of the author's purpose. It is not the only one. Editorials, articles, reviews and books should all be read in the light of what is the author's underlying purpose. One way to help develop a habit of questioning the author's purpose is to have the student read various types of material and then answer the question, who would have me believe this? (See Stroud, P. 157-161.) Another exercise is the multiple choice exercise in which the student is given several purposes and asked to choose which he thinks is the one the author had in mind. (See Glock, P. 193 and P. 199.)

To develop semantic sophistication in a short reading course is not a feasible goal. What is entirely possible is to help the student to recognize the more obvious semantic devices which authors use to achieve their various purposes. It is not the purpose here to explore all the semantic devices which a teacher may teach the student to recognize. A few of the simpler ones to recognize are:

1. Using words with several connotations.
2. Appealing to universal human needs, such as security, status and desire to belong.
3. Identifying a cause or product with something which is universally approved or disapproved (depending on which side the author is on), such as a famous person or an ideal. (Democracy, Communism, etc.)

Such devices are in such constant use today that it is not difficult for the teacher to find examples for students to analyze. He should certainly come to recognize such statements as: Everyone does it; So-and-so uses it; It belongs to the better things in life; etc. (Examples of exercises which help to develop some degree of semantic awareness are found in: Stroud, P. 163-170; Glock, P. 35 and P. 38; Guiler and Raeth, P. 114.)

The personality characteristics of the reader have a most important effect on his comprehension. Most people have areas in which their minds are not open to suggestion. For some it is religion, for some politics, for some particular ideas or particular people. Though it would perhaps be a wonderful thing if all people were open minded on all subjects, it is nevertheless true that most people are not. The important thing is to become aware of those areas in which one is not impartial. In this area it is not important that the student do exercises but that he discuss his own areas of bias.

To summarize briefly what has been said about the teaching of comprehension, comprehension skills were divided into two types which were called the lower and higher order skills. Included in the lower order skills were: Recognizing main ideas, significant details, summarizing, direction following, vocabulary improvement and skimming. The higher order skills were: drawing inferences and conclusions, predicting outcomes, tone and intent, author's purpose, semantic devices and personal biases. It was stated that practice in these skills with increase in rate of reading would help the reader toward better comprehension. This list of skills by no means exhausts the reading skills which are used by the thoughtful reader. It is on these basic skills, however, that further improvement will depend. Development in reading never stops. The adult who reads widely, becoming ever more adept in the use of these skills and building an ever-increasing background of information on which to judge each new reading is the hope of the way of life which has pinned its faith on the belief that the voting public will ultimately make the right decisions.

The three workbooks listed below were repeatedly cited in the article because each contains a wide variety of good comprhension xercises. Good comprehension exercises may be found in several other college reading manuals, some of which are listed in Lyle Miller's article in this Yearbook.

[1] Glock, Marvin, *The Improvement of College Reading*, Boston: Houghton Mifflin Company, 1954.

[2] Guiler, Walter S. and Raeth, Claire J., *Developmental Reading*, Chicago: Lippincott, 1958.

[3] Stroud, J. B., Ammons, Robert S., and Bamman, Henry A., *Improving Reading Ability*, New York: Appleton-Century-Crofts, 1956.

Current Use of Workbooks and Mechanical Aids

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Whereas the several preceding articles in this Yearbook have dealt with recommendations of pedagogy and materials in college reading instruction, the next few pages will be devoted to actual practices as reported by 233 colleges. The data summarized were taken from questionnaires sent to 372 colleges which had been operating reading programs at the time of an earlier survey in 1955. The 233 responses represented reading courses with as few as four and as many as 200 students in colleges in all but three of the states in this country.

The questionnaires included a few items about administrative procedures such as class size, credit given, and current philosophy regarding the reading program. While these matters do not relate directly to the topic of workbooks and mechanical aids, some trends were disclosed which may as well be reported in the next few paragraphs.

ADMINISTRATIVE PROCEDURES

Growth or Decline of the Reading Program

In terms of growth of program in the last five years, 49 schools indicated that their programs had more than doubled, 67 indicated that they had had moderate increases, 34 indicated no increase at all, 20 indicated that they were limited by college policy and would not grow, and 2 indicated that they were unable to tell about growth.

One of the most surprising facts to emerge from the study was that 31 of the schools (13 per cent) which responded to the questionnaire, indicated that they were no longer carrying on a developmental reading program in their schools. Several of the unanswered questionnaires were returned with an indication that the staff person to whom they had been addressed was no longer at the institution. One would perhaps be safe in assuming that some of the other questionnaires were unanswered for this same reason.

In view of a general trend toward increasing demand for developmental reading classes, this 13 per cent loss of programs seems to bear closer scrutiny. A careful look at the reasons given, the accompanying letters, the footnotes, etc., that came back with these 81 questionnaires points out three major reasons for the discontinuation of these programs.

1. Several schools seems to have had a definite change in philosophy in the last few years about helping students to become adjusted to college. Several staff members mentioned that their schools had adopted a policy of "survival of the fittest," "rigid selective admission screening," or "sink or swim." The philosophy of these schools seems to be moving toward a belief that with increasing numbers of college students in each successive year, the greater consideration must be given to the student who is prepared and capable of college success. Many of these schools take the position that other smaller schools can provide these kinds of "remedial programs" if they want to do so to attract students. Although most of the staff members who have worked with the reading programs themselves realize that these programs offer a great deal to the able student as well as to the "problem student," this point of view has not been persuasive enough to save the programs from extinction.

2. Staff changes seem to be a significant factor in the discontinuation of several programs. In these cases, one individual has taken the interest and the time, often in addition to his regular staff assignments, to develop a reading program. When this staff member left, no one else seemed ready to take over these responsibilities. They had never been established as a part of the ongoing university program, but only as a special interest area of an individual or a small group of staff members. In a few cases there was some indication that the university would like to employ another person with similar interests, but that they had not had much success in locating such qualified personnel.

3. Several schools indicated that their reading program had been discontinued because it "cost too much," or that they couldn't justify the budget expenditure. This again would indicate a failure in not having established

the values of the program at a level that was readily recognizable to those in positions of administrative responsibility. Perhaps too little was done in the way of organization and information about the operation and effectiveness of the program.

College Credit

In terms of credit, we find that over half of those schools reporting offer their reading program on a "no-credit" basis. The maximum credit involved in any school was five quarter hours credit in combination with other basic study skills. Table I below indicates a breakdown on the credit distribution.

Table I

Credit	Quarter	Semester	Not Specified	Total
None	13	25	87	124
1	3	18	7	28
2	9	23	3	35
3	4	9	3	16
5	2	....	....	2

Class Membership

In terms of the membership in reading classes, the majority of the schools (164) reported that their enrollment was open to any under-classman. Thirty-six schools indicated that they limited their enrollment to freshmen only. Non-college adults were allowed to register in reading classes in sixty-three of the schools reporting. Three respondents went on to comment they encouraged high school students to participate in these classes and ten schools indicated they encouraged faculty members to take advantage of the reading program.

Time Spent On Reading Instruction

In terms of time spent in actual supervised reading practice, the general pattern seemed to be about 20 or 30 hours, with a substantial number of schools indicating even more time than that spent in reading class. A breakdown of the time spent in the responding institutions is presented in Table II.

Table II

Length of Training and Total Class Hours Spent on Reading Work

No. of hours	No. of institutions
30	61
20	59
40	28
50	21
10	14
54	7
55	1
60	1
72	1
96	1
Varied with individual needs	7

Class Size

In response to the question of average class size, the respondents indicated a wide range in class size with a central tendency seeming to be a class size of 20 to 25 students. Actual distribution of class sizes as reported by responding institutions is presented in Table III.

Table III

Average Size of Reading Groups

Class Size	Number of responding institutions
Under 10	16
From 10-14	33
From 15-19	47
From 20-24	59
From 25-29	28
From 30-34	16
From 35-39	5
From 40-50	6
From 50-99	1
100 or more	3

METHODS AND MATERIALS

By far the most popular basic plan of instruction, as indicated by 96 responding institutions, was the basic group practice using workbooks for the whole group, supplemented by individual practice with mechanical aids. The next most popular pattern, as followed by 51 institutions, was one of basic group practice with mechanical aids supplemented by individual practice in workbooks. Only a small number of schools indicated a subdivision of the class into homogenous groups for specific practice. Fourteen indicated such grouping for workbook practice and eleven indicated such grouping for machine practice. Eighteen schools indicated an individualized program planned for each individual's need with no common group work for all. As one might expect, most of these programs were those of schools handling small groups of students. Another common plan, which had not been provided in the questionnaire but which seemed to be the practice of forty-six of the institutions, was a group program utilizing both workbooks and mechanical aids for indivdual practice within the group, but with no common basis for practice for the entire group.

In the area of basic method, then, we seem to find strong support for a basic orientation around either workbooks or mechanical aids, with the responding schools somewhat divided as to the best basic approach. Several respondents reported definite dissatisfaction with various mechanical aids, however, and indicated that they were using their various reading machines less and less as time went on. Some indicated that they had changed from a mechanical aid to a workbook approach rather recently. On the other hand, although some negative reaction to specific workbooks was voiced, no definite shifts from a workbook approach to a mechanical aid approach seemed obvious in the replies. I would assume, therefore, from studying the questionnaire results that workbooks are a little more soundly established and less subject to criticism than are mechanical aids. Even with a number of negative comments about mechanical aids, however, one should not necessarily conclude that this would imply that the workbook approach is the better approach. It may be that it is simply a more economical approach for schools with limited budgets. The factor of "quality" or "cost" in this issue could not be established without a more complete study than this one.

Utilization of Workbook

In securing more detailed information about the utilization of workbooks, two possible uses were set up in the questionnaire for identification. First, workbooks which were used as a basic manual for all members of the group, and second, workbooks which were used as supplemental practice for individuals.

The first question of the basic manuals for all members of the group would seem to apply only to the 96 schools which indicated a basic approach of a workbook for all group members. However, 157 schools answered this question, indicating some substantial use of workbooks for all members of the group. Fifty-one different workbooks were identified in response to this question. Of these, 33 were mentioned by only one or two schools and therefore do not seem to have very extensive use. (These are listed at the end of the paper.) Some of these undoubtedly are locally prepared workbooks which have only limited circulation.

The ten books which seem to be most widely used in the sample of this study are listed below in the order of descending frequency of use. The number in front of the listing indicates the number of schools which reported using this workbook as a basic workbook for all members of their groups.

(17) Miller, Lyle L., *Increasing Reading Efficiency.* Henry Holt, 1956

(14) Spache, George D. and Paul Berg, *The Art of Efficient Reading.* Macmillan Co., 1955

(14) Glock, Marvin D., *Improvement of College Reading.* Houghton Mifflin, 1954

(13) Simpson, Elizabeth A., *S R A Better Reading Books.* Chicago: Science Research Associates, Inc., 1951

(12) Brown, James I., *Efficient Reading.* D. C. Heath, 1952 (Alternate Edition, 1956)

(11) Gilbert, Doris W., *Power and Speed in Reading.* Prentice Hall, 1956

(11) Strang, Ruth, *Study Type of Reading Exercises.* Columbia University Press, 1951

(9) Witty, Paul, *How to Become a Better Reader.* Science Research Associates, 1953

(8) Cosper, Russell and E. G. Griffin, *Toward Better Reading Skill.* Appleton Century Crofts, 1953

(8) Stroud, James B., Ammons and Bamman, *Improving Reading Ability.* Appleton Century Crofts, 1956

Almost all of the schools identified workbooks which were used as supplementary practice material, and in all, 86 books or supplementary materials were identified in this question. Several of these apparently are not nationally known publications and may be local materials or materials with a very limited distribution.

Materials To Supplement Workbooks

In listing materials other than workbooks used to supplement classroom practice, the following materials were listed in this order:

1. Mimeographed local material	48
2. College textbooks	25
3. Magazines	25
4. Vocabulary exercises	20
5. S. R. A. laboratory	12
6. General outside reading	10
7. Novels	6
8. Newspapers	6
9. Library materials	5
10. Dictionaries	5
11. Various reprints	4
12. Perceptual Development Laboratory Materials	3
13. Short stories	2
14. Worksheets	1

(30 institutions listed mechanical aids of various types in this section)

Mechanical Aids

Mechanical equipment may be used for several purposes in a reading program so this question was designed to identify both mechanical aids used and the nature of the use. This material is summarized in Table IV.

Table IV

	USE			
Instrument	Diagnosis	Motivation	Training	Group Drill
Opthalmograph	11	4	1	....
Metronoscope	1	3	1	....
Telebinocular	65	2	2	....
Tachistoscope	25	99	84	75
Reading Accelerators	22	113	131	20
Films	19	74	69	47
Other	....	....	....	....
Orthometer	4	1	1	....
Controlled Reader	2	11	13	11
Rateometer	....	1	1	....
Tachitron	1	....	....	....
Flash Readers	....	....	1	....
Shadowscope	1	1	....	....
Perceptoscope	....	1	2	2

From the data in Table IV it is apparent that the most frequently used mechanical aids are the tachistoscope, which seems to be most popular as a motivational and training device, and the reading accelerators, which are used most frequently as a training device. Films seem to be used for all four purposes, but a number of the respondents who listed films also added critical comments about the limitations of the films, particularly for group work. Several of the devices listed under "other" probably should have been included under the heading of "reading accelerators" but are listed separately here to indicate that some reading instructors felt there was a difference that merited a separate listing.

"Pre" and "Post" Tests

In terms of tests used as pre- and post-class measurements in growth of reading skills, sixty-three tests were mentioned but only eight of these were mentioned more than six times. Twenty schools used locally made tests. Listed in decreasing order of frequency these tests are as follows:

Diagnostic Reading Test	61
Cooperative English Reading Test	57
Iowa Silent Reading Test	45
S. R. A. Reading Test	22
Nelson-Denny Reading Test	21
California Reading Test	12
Robins-Hall Reading Test	7

Materials Desired to Meet Unfilled Needs in Developmental Reading Program

A wide variety of ideas were expressed in response to this question but six points seemed to stand out as needs that ten or more reading instructors recognized. These basic material needs are listed in the hope that some of you may become interested and develop some of these materials to share with your colleagues in the field.

1. More material and tests appropriate specifically for the college level.
2. Material in specific subject content areas.
3. Easier editions of workbook for use at lower levels.
4. More and better vocabulary aids.
5. Better standardized tests of reading and comprehension.
6. Workbooks which would include a greater variety of difficulty content in a single book.

Other needs expressed were the needs for more mechanical aids of different types, less expensive mechanical aids, and longer standardized reading materials.

PART TWO
IMPROVING PROGRAMS

Background Of Measurement In Reading Improvement

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All research presupposes measurement. In a sense all improvement in instruction in reading depends upon measurement. To be sure a given teacher may reflect that he feels more comfortable and self-assured teaching reading by procedure A than by procedure B. This is scarcely measurement. But if a hundred teachers or eighty in a hundred, make such a report we have something approaching measurement. One could write a descriptive history of methods of reading instruction without reference to measurement. However, when one attempts to investigate the relative effectiveness of the respective methods, seen in historical perspective, he must sooner or later come to terms with measurement.

If for the moment we consider the sum total of our knowledge of reading, such as might be encompassed in a course of instruction bearing the title Psychology of Reading, knowledge which certainly has had a profound effect upon reading instruction, we are impressed with the cruciality of measurement. Javal must have made his original observations upon the saccadic nature of eye movement in reading without the aid of measurement. Indeed it seems unlikely that one would have ever attempted to investigate the behavior of the eyes in reading had he not observed that they move in unusual ways. However, all subsequent khowledge of eye movements has been derived through measurement. The period from 1878, the date of Javal's original observations, to 1917, the date of Schmidt's monograph, was marked by attempts to measure eye movements in reading.*

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*W. A. Schmidt, *An Experimental Study in the Psychology of Reading.* Supplementary Educational Monographs, No. 2, Chicago: University of Chicago Press, 1917.

A similar history characterizes the work on the relationship between reading rate and comprehension. In his book, *Mental Evolution in Animals*, published in 1883, Romanes described some work upon this problem.** Here he measured reading rate much as we do today. Tests of reading comprehension as we know them had not appeared upon the scene. He resorted to the method of written reproduction. In passing, it may be noted he observed "astonishing differences in reading rate," amounting to as much as 4 to 1. He also observed a lack of relationship between slowness of reading and power of assimilation. Investigations to the same effect, using more or less similar methods were reported by Abell (1894) and Quantz (1897).*** As you well know, the problem of the relationship between reading rate and reading comprehension is still with us. I think it may be said that the advent of the reading test as you and I know it has contributed more to confusion than to the solution of the problem. To this issue we shall return later.

If we look at almost any of the practical problems of reading instruction we again see the significant role of measurement. Without measurement, without measurement of some kind, we do not know what the instructional needs are and do not know the effectiveness of instruction once it has been undertaken. Any consideration of such practical problems as reading readiness, reading level, individual differences, homogenous grouping, establishing special classes for the retarded or gifted, referring pupils for remedial instruction, investigating factors associated with reading deficiencies, calls for measurement appropriate to the problem.

In thus recognizing that measurement occupies a crucial place in the improvement of reading instruction we should not lose sight of the role of subjective judgment upon the part of the teacher. The judgment of the shrewd, experienced teacher may approach an unstandardized form of measurement and should always be given weight in pupil appraisal procedures. Moreover, in thinking of measurement we envisage more than measurement of reading proper. It is really the child and his development that concerns us, not merely his reading. Thus the professional worker in reading must be conversant with measurement of intelligence, of personality,

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**New York: D. Appleton and Co., 1833.

***A. M. Abell, Rapid Reading, *Educational Review*, 1894, Vol. 8, pp. 283 ff. J. O. Quantz, Problems in the Psychology of Reading, *Psychological Review*, Monograph Supplements, 1897, Vol. 2, No. 1.

especially as it may affect or be affected by reading performance, and with the measurement of scholastic achievement generally as this reflects the use of reading.

We are all familiar with the fact that writers recognize two kinds of reading tests, the so-called survey test and the diagnostic or analytical test. The survey test whose purpose seems to be that of ranking pupils in over-all proficiency in reading or perhaps determining the general developmental level of reading of a class or school system, appears to be most appropriate to a general educational achievement battery. The professional worker in reading will probably insist upon the use of the best tests he can get—tests that yield the maximum amount of information about the reading performance of the pupils being tested. Having made this point it still may be questioned whether or not analytical testing has lived up to its earlier promise, in the field of reading, in the field of intelligence, or elsewhere. What I mean to suggest is that diagnostic testing is something to be critical about.

Analytical testing seems to imply that reading performance may be analyzed into a number of separate and at least somewhat independent abilities, that these abilities develop in a given pupil at rates that are somewhat independent, and that we have separate and independent instructional procedures for their development. In the light of these three conditions we seem to do pretty well at the beginning and early levels, and less well at later levels.

There are certain abilities which we associate with reading readiness, which are correlated with one another and with intelligence, but which vary somewhat independently. Moreover specific training designed to foster the development of these abilities or skills is at hand. I have in mind such abilities or skills is at hand. I have in mind such abilities as auditory discrimination, visual discrimination, matching objects whose names begin with the same sounds, choosing pictures of objects whose names begin like the names of certain objects or persons named in stories, and discerning the meaning of stories heard orally. Of course the meaning of the obtained scores on such tests will depend upon the measured intelligence and perhaps the social background of the individual child. Thus the intelligence becomes a factor, perhaps the most important single factor, in assessing readiness for reading.

At the first and second grade levels diagnosis may also feature an intelligence score or some kind of reading capacity score. Especially at these stages of reading development the teacher or reading specialist will wish to make sure that adequate auditory and visual discrimination abilities have been acquired. In addition it would seem to be profitable to test for word analysis, sight vocabulary, use of contextual clues in attacking new words, and of course, reading comprehension. In the latter the test designer may make use of sentences, paragraphs, or somewhat longer connected stories, or of all three. I think some caution should be observed in attributing diagnostic significance to the separate scores. At least, when the three types are used there appears to be no reason why the scores cannot be combined to form a total reading comprehension score. It is not sufficient, in order to enlarge the count of diagnostic features of a test, to call one of these sentence comprehension; another, paragraph comprehension; and the other, story comprehension; and to provide subtest scores and norms, as if the three separate scores had some diagnostic significance. At least, the test author should be expected to demonstrate that the part scores have some analytical value or present plausible argument that they do so. It seems probable that the pupils who can read and successfully respond to such sentences as (1) Can some animals live under water all their lives? or (2) Do birds like to have you touch them? or (3) Would you be surprised if you saw a monkey drying the dishes? could successfully read stories of comparable levels of difficulty and vocabulary. This in no sense is offered as a criticism of test authors for using a variety of devices for testing reading comprehension. They always work under rigid limitations of space. They face the problem of the most efficient use of space. They also face the problem of holding the interest of the pupils. Obviously they are justified in employing any stratagem available. Upon our part, as professional workers in the field of reading, we do not have to attribute diagnostic significance to these separate tests simply because they exist.

The reading test author always faces the problem of how to combine the subtest scores to form composite scores. As a kind of rule of thumb I think it might be suggested that scores which have separate diagnostic or teaching significance should not be combined into composites. For example, work-study skills such as the use of indexes, the use of the library, or the ability to read maps, hardly belong with reading comprehension, not in a diagnostic test. They might be grouped together to form a total work-study skill score. Measures of reading capacity, if they form a constituent part of a reading test, should be kept separate from work-study skills and reading comprehension. As much may be said of word attack skills or sight vocabulary. A composite score comprised of all the part scores on a reading test is not very meaningful and tends to obscure its diagnostic features. The practice of providing such scores may not be objectionable at all in a survey type of test.

Once we are past the primary grades, appraisal of reading performance in the ordinary course of school work resolves itself pretty largely into measures of capacity, measures of rate, and measures of comprehension. One of the most engaging tests to this purpose, one which unfortunately for some time has been out of print, is the *Van Waganen-Dvorak Diagnostic Examination of Silent Reading Abilities.* As measures of capacity this battery features subtests of Vocabulary, Analogies, and General Information. As a measure of reading rate these authors make use of a test of the Chapman-Cook type, consisting of a number of short paragraphs in each of which is imbedded an incongruent word or phrase. The reader is asked to mark out these words or phrases.

Upon the face of it this would look like a good procedure, since it provides evidence that the reader did or did not read with understanding the passages upon which his rate of reading was established. However, this method has some inherent disadvantages. Such tests are ordinarily administered by the time-limit method. If the number of items attempted is taken as the rate score nothing is gained by requiring the reader to show evidence that he understood what he read. If the number right, or worse still the number right minus a fraction of the number wrong is taken as the score, we confound the rate score with the comprehension score. One who attempts 15 items and gets 10 right reads faster than one who attempts 10 items and gets 10 right. He would not receive a higher rate score by this method. Indeed if a correction formula is applied he would receive a lower score.

There is the further fact that the reading rate score is contaminated by the pupils' habits of work and thought. A meticulous worker may earn a lower score than another student who reads no faster but is less careful about his work.

Both of these criticisms of the Chapman-Cook type of test apply to any work-type reading rate tests.

The Van Waganen-Dvorak examination provides for five comprehension scores, as follows: (1) generalizing, (2) drawing inferences, (3) noting and remembering clearly stated detail, (4) drawing conclusions, and (5) combining ideas that belong together in thought but are not presented together. These subtests of comprehension are of high quality. They sample most of the important aspects of good reading comprehension. At least these are aspects of intelligent reading. I think the merit of these subtests lies chiefly in their quality and in the ampleness of their coverage of comprehension abilities. I feel less assured about the diagnostic significance of the part scores. I doubt that these abilities vary independently to any great extent, or that we can or should provide instruction designed to foster their development independently. Certainly this is a case in which a total comprehension score is most meaningful.

There are some traits which we simply associate with intellect. A hundred years ago in Europe, as railroads and highways were being built and gravel pits dug, men were finding stone implements, eoliths dating back to the tertiary period, and later, shaped tools of the second inter-glacial. No fossil men were found to go with these implements in those far-off periods. Yet, scholars recognized them as the work of man. These are among the things we expect of intellect, and only creatures capable of higher intelligence can do these things. Of course intelligent pupils can generalize, draw inferences and conclusions, can summarize, and combine ideas that go together in thought but are not presented together in time and space. Indeed they can combine and synthesize information acquired at different periods in their lives.

A test author can make more efficient use of his reading text by getting at comprehension in different ways. One good inference item may be all he can get out of a paragraph. But he may also be able to get an information item or two, a generalization item, or a conclusion item. This fact alone would justify the use of a variety of types of comprehension items.

At this point the question arises as to the rightful relationship between tests of reading comprehension and tests of intelligence. Suppose one of you, or for all I know, a bright sixth grade pupil read the following statements: The Caspian

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Sea, situated between Europe and Asia, is 92 feet below sea level. It is fed by two large rivers, the Volga and the Ural, which drain vast areas of Russia. You or he would be able to infer that this is quite a large sea; that it is a body of salt water; that it has no outlet to any of the oceans, among other things. Such statements and such inferences might well go into an intelligence test at age levels to which they are appropriate. I would not think them appropriate to a reading comprehension test. The inferences must be drawn from too much information not contained in the two-sentence story. Conversely, in a reading comprehension test we might think that the stories to be read should contain all or most of the information the pupil would require in order to draw the inferences, to make the generalizations or draw the conclusions called for. Obviously different levels of reading comprehension will require different levels of intelligence.

I have suggested that there are three major facets to pupil appraisal in the field of reading and that the question of improvement of reading be considered in the light of these three facets. As indicated, these are reading rate or fluency, reading comprehension, and reading capacity, perhaps chiefly intelligence. It is of the greatest consequence that measures of these three aspects of pupil growth be kept separate one from another in so far as possible.

It seems fairly easy to secure independent measures of reading rate. As Professor Eller and his students have demonstrated, fair reliability can be achieved in reading rate scores, either by the time limit or amount limit method, based upon three or four minutes reading time.* At least rate scores based upon reading times of such lengths appear to be about as reliable as those based upon reading time of much longer length. Now, the test author, being under press to make the most efficient use possible of his allotted space commonly prepares a comprehension test over passages thus read to establish reading rate. In so far as I can see this does no harm to the rate score. But it does in some cases, for some reasons unknown to me, introduce a correlation between rate and comprehension, as for example on the Pressey and Traxler tests. In the case of these two tests, as you will recall, the pupil proceeds to read a somewhat long selection and after a length of time marks the line he is reading when a prearranged signal is given. The pupil then completes the reading of the entire selection and straightway takes an untimed comprehension test. With these two tests I have repeatedly obtained correlations in the range of from .30 to .40 between the rate and comprehension scores. We would of course expect positive, and somewhat higher, correlations between rate and comprehension on those tests in which the comprehension section is timed. I have also repeatedly obtained zero correlations between rate and comprehension in other situations in which pupils read entire selections each at his own rate and proceeded to take untimed comprehension tests over the passages. Another of our students, Mr. Thalberg, has obtained correlations of zero, more or less, between rate of reading established on one set of selections and comprehension scores established on entirely different sets of selections.* The latter were, of course, read.

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*K. Humphrey, Amount-Limit and Time-Limit Methods of Measuring Reading Rate, Doctor's Dissertation, State University of Iowa, 1955.

It is suggested that there might be some merit in using different reading selections for the establishment of rate from those used to establish comprehension scores. At least this procedure would permit us to conclude that any relationship found to exist between rate and comprehension were real, and not a consequence of some kind of dependence of one of the measures upon the other. This would look like a legitimate thing to do. If reading rate has any generality, if there are persons who are rapid, average, and slow readers, this fact can be ascertained, and such persons identified, by one reading passage as well as another. If reading comprehension scores have any generality, good, average, and poor comprehension can be ascertained on reading selections quite independent of those used to establish rate. Moreover, the rate and comprehension tests could be thus administered weeks or months apart.

It is true that the rank and file of reading comprehension tests are confounded by a rate factor. It has seemed expedient in the marketing of tests to be able to inform school officials precisely how long it takes to administer a test. For this reason, and also perhaps to enhance the reliability of the tests, reading tests commonly are strictly timed. Thus the comprehension score reflects not only power of comprehension but also reading rate and rate of work. An excellent substitute for a comprehension test of unlimited time is the "level of comprehension" feature of the Cooperative tests. Here, even though there is a specified time for administration, the level of comprehension score is reasonably uninfluenced by rate of reading. Suffice it to say that it is possible for a slow reader to make as high a comprehension score as a rapid reader. It is rather surprising that this procedure has not been used more extensively than has been the case.

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*S. P. Thalberg, Reading Rate and Comprehension in a College Reading Program, Master's Thesis (in preparation) State University of Iowa.

In my insistence that reading rate and comprehension be measured by methods that yield scores that are independent of each other I am not assuming that rate and comprehension never bear any genuine relationship to each other. I think in the ordinary course of events, and in the case of most reading tests, rate and comprehension vary independently, more or less. Either this is true or I, and some of you, have had no business teaching that slow reading is the consequence of bad habits. On the other hand I feel sure there are conditions under which rate and comprehension vary concomitantly. I think the question that should be asked is, What are the conditions that influence the relationship between rate and comprehension? not, Is there a relationship? My interest in the relation between rate and comprehension at the moment centers not so much in the phenomenon itself as in its bearing upon problems of measurement.

I shall use an illustration or two. On some of the items in intelligence tests, such as "block design" and "object assembly" on the *Wechsler Intelligence Scale for Children,* or the problems in Raven's *Progressive Matrices,* it may mean one thing to solve or fail to solve the problems at all. It may mean another thing to be able to solve them quickly. In such cases speed signifies power. Power makes speed possible. In power situations speed may signify intelligence. In mine-run situations it may not do this. Speed in mine-run situations may not correlate positively at all with speed in power situations. In certain test situations power of intelligence may make for rapid reading and for high comprehension. Another kind of power may come from training. We would expect an instructor in chemistry to read a chapter in a chemistry text more quickly than an instructor in psychology and to show better comprehension.

Thus in reading situations in which there is a premium upon power we would expect both reading rate and comprehension to vary with the power of the readers. Even here.

prior habits of work and thought may operate to upset the relationship. In order to demonstrate a positive relationship between rate of reading and comprehension even in a power situation it probably would be necessary to arrange for some kind of work-type reading, in which all readers could be held to some kind of uniform reading requirements.

As already said, pupil appraisal in our work requires the use of measures of capacity. Here also we are concerned about the independence of the measures, especially when certain group intelligence tests are used for purposes of assessing capacity. Since the inception of group testing, users of tests have been concerned about the effects of reading proficiency upon the scores, since these tests commonly involve reading and since for the most part the tests are administered under rigid time limits. Apparently we face here a somewhat complex set of relationships. As before, we are not so much concerned with knowing what the relationships are as what they mean in our work.

If reading rate is determined in power situations, as mentioned above, and if the group intelligence tests are power tests there is not much doubt that the reading rate scores thus derived would correlate positively with the intelligence scores. And under such circumstances probably no one would think it unfortunate that the fastest readers tended to make the highest scores. Twenty-five or thirty years ago psychologists were concerning themselves with the speed-power issue in group intelligence tests. One of the procedures used in investigations of the problem was to administer a test under standard time limits, then, after changing to pencils of different colored lead, to allow additional time equal to the standard limits or in some cases more. The workers did not quite agree upon what the results signified regarding the speed-power issue, but they were agreed in showing that pupils who made the lowest scores in standard time improved their scores least when allowed additional time. At least we may conclude that their low scores were not a consequence of slow reading.

We have reason to believe that the typical reading rate test is not a power test, at least not so to any considerable extent, even when it employs the work-type procedure. We know, I think, that slow, poor readers, slow readers with poor comprehension, do not improve their scores very much when allowed practically unlimited time on group intelligence tests. They do not seem to be penalized by their slowness. Their low scores are not attributable to slowness of reading. Typically such pupils do not do well on intelligence tests that do not require reading at all. Nor does a rapid, poor reader, as determined by the typical reading test, a rapid reader with poor comprehension, fare appreciably better upon a group intelligence test than a slow, poor one. On the other hand, there is some evidence that pupils who read rapidly and well, read fast with good comprehension, do somewhat better on group intelligence tests than slow readers who enjoy good comprehension. The differences are not great. We should not expect them to be great. The number of words to be read in a typical group intelligence test is not great. One who reads at a rate of 100 words per minute could cover an equal number of words of ordinary prose within the time allotted to the intelligence test.

Perhaps one would be inclined to the conclusion that group intelligence tests, which we use to measure capacity, are not seriously contaminated with the thing we are trying to predict, reading itself. Naturally there is a relationship, rather a high one, between intelligence and reading. That, of course, is the reason for our administering intelligence tests in reading work in the first place. But so that we may work with true relationships we want our methods of determining intelligence to be relatively free, operationally, of reading proficiency itself.

Obviously in clinical work we would insist upon individual psychological examinations. The reasons for this are numerous and obvious. In the ordinary course of school work this is, to say the least, impractical.

I should like to close with the general observation that the best intelligence tests to use for purposes of pupil appraisal in reading is the best tests of intelligence available. This would seem pretty obvious, but I think the statement deserves a little further development. The best intelligence test to use for the prediction of reading achievement is also the best test to use for the prediction of achievement in arithmetic, spelling, language, or in other subjectmatter fields. In our work over the years we have studied the relationships among various achievement tests and subtests and the following intelligence tests: *Primary Mental Abilities*, the *Stanford-Binet*, *Wechsler Intelligence Scale for Children*, verbal and nonverbal, *Davis-Eells Games*, *Progressive Matrices*, and *Lorge-Thorndike Intelligence Tests*, (verbal and nonverbal).

We have found little evidence of differential predictive power among these tests or among any of their subtests. In general those tests and subtests which yield the highest correlations with reading also yield the highest correlations with arithmetic, language, spelling, and so on. For example, in our work, the two subtests out of the eleven subtests on the WISC which yielded the highest correlation with reading were "block design" and "object assembly." It is significant that these same two subtests yielded the highest correlations, of any of the eleven, with the other achievement measures used.

Reading Deficiencies and Personality Factors: A Comprehensive Treatment

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In the last few years there has been a growing recognition of the significance of personality factors in reading difficulties. Spache has pointed out that success in reading may be markedly affected by the attitudes, feelings, prejudices, and general adjustment of the reader. He concluded, "Thus, remedial efforts may include or consist entirely of various types of psychological or psychiatric therapies."[17]

Consequently, the relationship between reading difficulties and personality maladjustment is presently receiving considerable attention from a number of investigators. Various studies strongly indicate that in many cases reading difficulties and personal maladjustment are interrelated. There seems to be, however, no clear-cut evidence as to which factor is cause, and which is effect. Zolkos[20] states, "In many cases, intense emotional strain and reading disability seem to interact, each adding stress to the other." This point of view is supported in the interpretation of research studies by Robinson[10] and Russell[12], who called attention to the need for the research on the relationship between reading achievement and personality adjustment.

In a study of the psychological, social, and environmental differences between 300 advanced readers and 300 retarded readers, Jackson[7] found that fears, worries, and the like existed among retarded readers to a degree that merited special attention in connection with reading difficulty. Raines and Tait[9] in a review of nine research studies concluded that, in many cases, reading retardation is a symptom of emotional illness in the individual. Witty[18] provided further evidence for the relationship between personality difficulties and reading disabilities. Using a non-directive play therapy approach to the problems of reading disability, Ellis[3] reported that the severity of emotional disturbance is significantly related to improvement in reading disability. Although the causal relationship between reading failure and emotional disturbance is supported by viewpoints on each side of the question, perhaps the most appropriate conclusion at present is that offered by Gates[5]:

> All of these symptoms or forms of nervousness, withdrawal, aggression, defeatism, chronic worry appear among cases in which the maladjustment is the cause, the result, or the concomitant of reading difficulty. It is therefore not possible to tell whether they were causes or effects or an accompaniment of trouble with reading.

Spache[16] has classified reading programs historically and methodologically into the following categories: (a) programs depending mainly on mechanical devices, (b) skills-drills programs, and (c) the psychologically-oriented program in which the reading difficulty is conceived as a symptom of a greater personality problem. In the third (and presently growing in acceptance) type of program, reading is viewed as simply another aspect of the total behavior of the individual for which the clinical method will be the method of choice.

Adherence to the extreme view represented by the third category is not warranted at present for a number of reasons. First, such clinical approach requires the availability of a large number of highly trained professional personnel for the extensive treatment of large numbers of individuals. These trained individuals are presently not available. Second, the adoption of this view assumes that the most effective type of therapy for reading problems has already been determined. In fact, however, the literature contains relatively few studies on the application of various types of therapy to reading problems. There is certainly no definitive evidence favoring one type of therapy over another. The non-directive approach and play therapy are the only methods which have received much more than cursory attention. Third, most of the endeavors have been largely concerned with the application of some type of therapy, usually play therapy, in conjunction with remedial reading at the elementary level, so that there has been very little investigation at the higher levels. Fourth, it seems more plausible that some combination of the three types of programs would be most beneficial for the client and most economical with regard to the time and energy of the professional personnel available.

A review of the literature on group therapy indicates that various individuals have been concerned with the application of group psychotherapy to the classroom program and as part of the treatment program of educational problems. Berl[2] described the use of psychotherapy with children who have emotional difficulties. Hinckley and Hermann[6] have utilized group psychotherapy at the college level and have presented a discussion of the transcribed sessions. Shedlin[15], Baruch[1], and Faw[4] have applied nondirective group psychotherapy in the classroom. Landsman and Sheldon[14] utilizing nondirective group therapy with college students in academic difficulty, have reported that, although the control and experimental groups did not differ significantly in the Iowa Silent Reading Test scores and the California Test of Personality scores, the groups did differ significantly with respect to grade point averages at the conclusion of the semester in favor of the nondirective group. These researchers reported that a follow-up study one year later revealed that, whereas 47 per cent of the control group had left school, only 25 per cent of the nondirective group had left school. In his review of the research, Spache[16] mentioned workers in the field of reading who utilized varying combinations of remedial work, play therapy, and group or individual psychotherapy according to the type of personality problem presented. In a forthcoming study, Woolf[19] discusses the relationship of personality factors to reading deficiencies. These studies, although few in number, suggest that group psychotherapy does contribute to the amelioration of educational (and, in particular, reading) problems of college students.

In view of the indication that group psychotherapy, as a treatment method, offered advantages as part of the armamentarium of reading programs, a research study was initiated to assess the contributions of such psychotherapy to a college reading improvement program. This report gives the results of a pilot study which preceded the main research.

The purpose of this pilot study was to:

1. investigate the personality constellations in a random group of students who enrolled in a college reading improvement program. Particular attention was given to the self-concept, the ideal-self concept, concept of others, and the interrelationships of these concepts.
2. investigate any changes which may occur in such personality configurations, and the relationship of any such changes to reading ability as measured by scores on standardized reading tests after exposure to group psychotherapy in conjunction with the regular college reading improvement program.

The subjects employed were students who were randomly selected from all the students who had voluntarily enrolled in sections of the reading improvement program. Evaluation of their pre-college admission test battery scores indicated that all the subjects had percentile scores on the American College Entrance Examination, 1949 Form (A.C.E.) that were in the average or better than average range. The group was composed of low Q-scores, equal L- and Q-scores, and high L-scores on the A.C.E. On the basis of their A.C.E. scores in conjunction with their high school achievement, it would not be predicted that these students would experience any difficulties in doing college work of at least an average caliber. Examination of their grade-point averages for the preceding semester revealed that, as a group, their performmance was below 2.0 (C=2.0), and they were experiencing academic difficulty.

The pre-treatment test battery administered to these students consisted of the following tests:

Wechsler Adult Intelligence Scale
Diagnostic Reading Test Battery (entire) (Form A)
McDonald-Byrne Reading Versatility Inventory (Form A) (8)
Michigan Vocabulary Test
Minnesota Multiphasic Personality Inventory
Taylor Manifest Anxiety Scale
Zolik Anxiety Scale
Zolik Q-sorts
Diagnostic interview (semi-structured)

At Marquette University, the reading improvement program extends over an eight week period. During this time, the students spend two hours per week in small group sessions and three hours per week in individual work and counseling sessions. This conventional procedure was followed by the students of this investigation with the addition of one 1½ hour session per week of psychoanalytically oriented group psychotherapy. During the first two weeks of the program two additional group therapy sessions were held in lieu of one of the reading improvement sessions. As a result, ten group therapy sessions were held during the eight weeks program. One therapist only, a clinical psychologist, extensively trained in both individual and group psychotherapy, conducted the group therapy.

A second group, similarly randomly selected, was given an additional hour of individual reading work per week in lieu of the group psychotherapy sessions. Work during this extra period was conducted along the lines suggested by Spache[16].

At the end of the eight weeks the subjects were administered the following tests:

Diagnostic Reading Test Battery (entire) Form B
McDonald-Byrne Reading Versatility Test (Form B) (8)
Taylor Manifest Anxiety Scale
Zolik Q-sorts
Assessment interview

A followup-on grade-point averages was done at the end of the current semester and also one year later.

The obtained Full Scale IQ's on the Wechsler Adult Intelligence Scale indicated that the subjects were all in the upper half of the normal range of intelligence. In terms of Verbal IQ the group was in the superior range of intelligence. The results of the tests of the Diagnostic Reading Test Battery revealed that the members of this group were not markedly weak in fundamental reading skills. Their fundamental vocabulary, word analysis skills, comprehension of material on timed and untimed, oral and silent material, while below average for college freshmen, were not extremely defective. The subjects as a group also scored below average on the Michigan Vocabulary Test.

Comparison of pre-therapy and post-therapy results indicate that improvement in reading speed, as measured by differences on the rate sections of the DRT Battery, was beyond the .001 level of significance. The pre-therapy and post-therapy difference in comprehension scores on the tests of the DRT Battery showed marked improvement although such differences were not statistically significant.

The pre-treatment scores on the Reading Versatility Inventory indicated that the subjects were extremely rigid in their reading approach. They lacked ability to shift their reading speed and method of approach to suit different types of material presented with sharply differentiated purposes. The post-treatment scores on this Inventory showed a marked increase in flexibility of reading (which is one of the marks of a good reader). The difference between the scores was statistically significant beyond the .001 level. There was also marked improvement in comprehension.

This group made better progress, on the basis of scores on the DRT battery and Reading Versatility Inventories, than did the group given an extra hour's reading work in lieu of therapy (the control group). The therapy group also made better progress, on the basis of DRT survey scores and Reading Versatility Inventory scores, than did the average of the Reading Improvement Program sections.

The Zolik Anxiety Scale, which provides a measure of the amount of situational anxiety experienced in situations such as school examinations, indicated that the group was markedly more anxious than the average college group in examination situations.

Clinical evaluation of the results of the Minnesota Multiphasic Personality Inventory (MMPI) indicated that none of the subjects could be described as being emotionally adjusted. On the basis of the MMPI, the group could be considered as being comprised of neurotic individuals who were introverted, easily discouraged (and thereby experiencing depressive feelings), anxious in social situations, anxious with regard to themselves and their abilities, and experiencing concomitant marked feelings of inferiority.

The Zolik Q-sorts were devised to provide an external criterion of adjustment level. In this procedure, the subject is asked to sort 100 statements into 9 piles, putting the cards most descriptive of him at one end; those least descriptive at the opposite end. Based on factor analytic studies by Cattell, these statements sample as wide a range of behavioral and personality traits as practicable. Sample items are:

5. I am a cheerful and happy person most of the time.
9. I have a lot of interests and a wide knowledge.
15. I tend to blame others and not myself whenever there is conflict or things go wrong.
19. I usually tend to be cautious.
25. I am not shy.
46. I have a lot of push.

The Q-sorts were intercorrelated. Pre- and post-treatment Pearson correlations were obtained between ideal-self-concept and self-concept, the ideal self and concept of others, and between the self-concept and concept of others. Additionally, Pearson correlations were computed between the pre- and post-treatment ideal-self concepts, the self concepts, and concepts of others.

The pre-treatment correlations indicated very marked discrepancies among the ideal self concept, the self concept, and concept of others. Post-treatment correlations indicated continuing discrepancies among all of the concepts. These discrepancies, however, were not as extreme as the pre-treatment discrepancies, and there was more variation in the size of the obtained correlations. An r to z transformation of the Pearson correlation coefficients was done for the purpose of statistical analysis. Analysis of the pre- and post-treatment correlations indicated that the post-treatment increase in all three correlations was statistically significant at the .05 level of confidence at the least. The analysis of the correlations between and pre- and post-treatment ideal self concepts, self concepts, and concepts of others indicated that the least amount of change occurred in the ideal self concept. The changes in the self concept and concept of others were very marked on the whole. The non-parametric Mann-Whitney test shows a change significant at the .01 level, indicating a true change over and above the control group. The relationship between the ideal self concept and self concept was such that the ideal self concept experienced some change, but the far greater amount of change occurred in the self concept. The change in the correlation between self concept and concept of others indicated that the change in the concept of others was greater than the change in the self concept. The post-treatment results suggest that the subjects perceived their peers as being much more similar to themselves than previously as well as perceiving more integration between themselves and their ideal self concepts.

The diagnostic interviews, conducted by the clinical psychologist, indicated that the group members manifested strong needs for abasement and deference. These students showed weak needs for achievement, autonomy, and aggression. These needs are essentially the same as Murray's trait descriptions. (These findings are congruent with Woolf's study although this investigation was conducted from the point of view of a different rationale.)

The post-treatment assessment interviews showed that the subjects manifested more need achievement, autonomy, aggression and dominance than was the case in pre-treatment interviews. There was also less need for abasement and deference.

An analysis of grade point averages revealed that the improvement in grades at the end of that semester was significant at the .05 level. The follow-up one year later showed that the improvement in grades was maintained.

The initial psychoanalytically-oriented group therapy sessions were exploratory and minimally interpretive. The aim was to promote a feeling of security in the group and to help the subjects establish that there can be a relationship among poor reading, poor academic performance, and personality factors. Lengthy silences were avoided in order to forestall any disruption of the integration of the group. In the initial stages the group tended to be guarded in its approach to the role played by personality factors. Two members of the group, however, were able to bring out emotional difficulties easily. Their broaching of neurotic symptoms enabled the other members of the group to proceed more easily into their feelings and personal lives. Considerable affect was expressed in the discussion of parent and peer group relationships. The amount of insight gained by the students as a result of the therapy sessions varied from minimal to a considerable amount. One topic from which the members obtained insights that were considered to be significant centered around their reactions to their instructors and the relationship between this reaction and their reactions to their parents.

The post-therapy interviews revealed that several subjects felt that they now found it easier to make friends, and that they had overcome to a significant degree the fear of expressing themselves. One individual stated that he now sought out friends and felt that his increase in self expression had resulted in an increasing acceptance of him by his peers.

All subjects, except one, reported that they were much more self-motivated toward achievement in college rather than being other-directed (essentially parent-directed), and that they were much less fearful and anxious regarding examinations. Most were able, as revealed by post-treatment assessment, to distinguish between normal and neurotic anxiety in relationship to academic achievement. All the subjects reported that they had gained something from the group therapy experience, although there was a wide latitude of opinion regarding the value of the group experience.

These results in terms of changes in personality are consistent with the results obtained in nondirective therapy as reported by Rogers and Dymond[11]. Although conducted from a different point of view, this research was congruent with ours in showing that clients retained their positive gains over a considerable period of time. These researchers also found that clients motivated for counseling did not show alteration in the relationship between self and ideal self concepts simply as a result of the passage of time.

On the basis of the gains indicated by the test results, academic records of the group as a whole, and marked behavioral changes, further research has been planned. The ongoing research design employs the random assignment of matched subjects to a control group, a reading group, a group psychotherapy group, and a combined reading improvement-group psychotherapy group.

Conclusions:

The results of the objective tests and the behavioral observation of the subjects indicate that group psychotherapy contributes significantly to a college reading improvement program. Serious consideration should accordingly be given to the utilization of group psychotherapy as part of the various services offered in connection with reading improvement programs.

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Some Unanswered Questions in the Psychology of Reading

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Reading has been subjected to numerous investigations, but quantity in itself does not assure us that we are making the needed investigations. Perhaps, the major contribution of this paper will be to suggest the direction that future research might take. We have organized our discussion about certain basic psychological concerns with the hope that these may outline our own endeavors while at the same time suggest a number of hypotheses that must be tested.

Reading, a Perceptual Process

Perhaps the most characteristic statement that we can make about reading is that it is a perceptual process. We define reading as the process of giving significance to graphic symbols by relating these to our own fund of experience. Reading is essentially a process of interpretation. In reading we go beyond what the senses provide; in short, we react not to the symbol, but to what the symbol signifies.

This makes reading a complex process and creates numerous difficulties. It makes it almost impossible to communicate perfectly. Too frequently we assume that communication between writer and reader is taking place. We act as though there were a direct connection between symbol and referend, between the symbol and the datum, object, or event. Children are even *more prone* to identify the symbol with the referend and frequently suffer from the illusion that by manipulating the symbols they also are manipulating the referends. They tend to exclude the referend and fall into the practice of verbalism. Bright children especially have great facility in manipulating symbols, but because of their lack of experience they have not filled these with meaning.

Perception or interpretation in reading may be concrete or abstract. However, communication generally depends on the ability to think abstractly, to think of the individual object as a member of a class. Unfortunately not all persons can do this. Aphasics, for example, are incapable of making interpretations on an abstract level. Research indicates also that very young children and some poor readers characteristically tend to react to the individual as individual and not as a member of a class. This we call interpretation on a concrete level.

Certainly, this question is important. A writer cannot communicate a generic sense to a reader who cannot group according to categories. Adequacy of perception and communication is a necessity in reading. Children not only must identify and recognize symbols; they must attain meaning. The good reader is characterized by this skill. Even though in his reading he makes substitutions, these commonly keep the meaning intended by the writer. His perception tends to be vertical.

The problems presented by concepts and meaning are not so apparent in grades I and II; they are more pressing in the intermediate grades, in high school, and in college. There, the student needs the ability to comprehend units of increasing size. He must relate one concept to another concept. We must determine the ages and grade levels when various types of concepts might be developed and indeed how reading might aid in this process. We want to know when and how best to teach concepts of size, space, number, and time. At present, research indicates that the concept of chronological time or time in sequence generally is not acquired before the sixth grade. Spatial concepts such as latitude, sphericity, date line, zone, altitude, and longitude seem to be acquired about the same time. Social concepts are equally difficult. We want to know how we might promote readiness for these concepts.

We must know why certain children, especially boys, have less adequate perceptual development. We want to know how early differences in perception can be observed and how soon they can be taught. We must devise better measurements of a child's ability to reason with verbal concepts, to generalize, and to remember word meanings. We must identify those youngsters who cannot assimilate the materials after they get to the brain.

The entire problem of meaning is far from solved. We have difficulty in defining reading comprehension and have not done an especially good job of teaching children to associate meanings with word symbols. Too many children have not learned to evaluate meaning, to select the correct meaning, and to organize meaning. Our methods for teaching children to follow directions, to draw inferences, to recognize literary devices, and to apply meanings are frequently hit-and-miss affairs. The great variety in points of view as to how best to teach comprehension skills points up another basic deficiency. Some writers suggest that the student survey the main headings, check the key words and phrases, and relate them to one another. Some speak of thought-unit reading. Some stress that reading should be done to answer specific questions. Some emphasize outlining and others recommend the SQ3R or similar methods. Indeed, some suggest that the basic comprehension skills cannot be taught.

Words are important to the development and use of concepts. It is remarkable that with all our methods reading vocabularies develop so slowly. Somehow, children learn to react to a far greater number of words orally than visually. Why? Are we perhaps restricting vocabulary growth by robbing children of their interest in words through the meagerness of our offerings? Or is it distinctly easier to discriminate orally than visually? We want to know more about promoting vocabulary growth. We want to know how best to use the context, real and vicarious experience, visual aids, dictionaries, word lists, index cards, synonyms and antonyms, and structural analysis in teaching vocabulary. And, we want to know for which age groups these are best fitted.

Rate of Comprehension

Our difficulties, however, are not entirely with the meaning of words. Reading programs are placing increasingly more emphasis on rate of comprehension. Rate improvement programs have become so commonplace that we must know the values they offer. Almost all studies indicate that rate can be improved. Why this occurs is not so immediately obvious.

The goals claimed for reading improvement programs are many: these include increased accuracy of perception, more accurate and more rapid visual discrimination, better visual memory, orderly left to right progression, wider span of apprehension, better attention, organization, and concentration, better work habits, better visual focus, shorter reaction time, greater self-confidence, fewer regressions, fewer and shorter fixations, more rhythmical reading, and better comprehension.

These are worthy goals, but we do not yet know how best to attain them. We have little conclusive evidence for choosing between machine- and book-centered programs. We do not know the transfer effects of machine programs, nor how these might be increased. We do not know whether it is desirable to change the eye characteristics of the reader or not. We don't know what effect machines, that require the eye to move at an even speed whatever the nature of the material, have upon the flexibility of the reader. We have little normative data to help us to decide whether to use digits only, words or phrases only, or a combination of these in tachistoscopic training. We have few data to help us to choose the optimal length of the exposure time in beginning exercises.

The mind, not vision, seems to be the limiting factor in perception. The recognition span of the average reader is much smaller than his tachistoscopic span. We must consequently ask ourselves; are machines merely motivating devices that force the mind to work closer to its capacity and to think at a faster rate? The evidence indeed seems to indicate that mechanical devices improve not the optic, retinal, and conductive processes, but rather the perceptual. Rate seems to be improved by hastening the mind rather than by stretching the eye span. Mechanical devices train the subject in making rapid associations with rapidly changing visual stimuli.

Reading Is Learned Responding

A psychology of reading suggests also that reading is *responding* and that it is *learned* responding. It is not difficult to see that we are not exactly doing an excellent job in teaching our youngsters to read. There are too many glaring examples of reading inadequacy. But, it is far more difficult to find specific reasons for this inadequacy. Nevertheless, we know that some reading disabilities can be attributed to ineffective instruction. Others can be attributed to performance variables.

Children respond more readily when the response is motivated; they respond more readily when the response is rewarded; and they tend to find it easier to respond when they have performed the act previously. But, we also know that responses may be inhibited. In reading numerous factors may inhibit the response.

Injury to the brain, bad health, lack of physical energy, emotional maladjustment, defective vision and hearing, and the content and appearance of the text, for example, may inhibit the child from making the responses needed to learn to read. Achievement in reading is dependent on many factors, and when we ask children to learn to read, we also ask them to make certain responses. If they cannot make these, they cannot be expected to learn to read.

Learning to read however requires more than the ability to respond. It involves the association of the spoken with the written word. Unfortunately, too many youngsters foil our efforts completely by making either wrong or inadequate associations. They do not see the printed word or have not heard the spoken word correctly. Children of above average intelligence frequently memorize rather than identify and read words. They have not really made the associations necessary for learning.

Numerous questions related to the learning of reading need answers. What is adequate practice? How can we best motivate the child in reading? Is massed practice more effective than distributed practice with the slow learner? How can we increase transfer in learning to read? What is the role of perception in the associative process? How is transmission at the synapse related to association and do the endocrine glands have any bearing on this process? May glandular therapy lead to better reading? How many reading problems are caused by inadequate instruction, by change of teachers, by interruption of the reading program, and by unsystematized instruction? What are the benefits of presenting words in context as opposed to presenting them on word wheels, cards, or tachistoscopes? Is it sound to use pupil-helpers to teach word-recognition skills?

The Teachable Moment In Reading

Numerous questions in reading concern the child's readiness for reading. When is the teachable moment for beginning reading and indeed, for each of the specific reading skills?

Studies have suggested that reading readiness is a function of the child's mental age, his experiences, his language and perceptual development, his sensory and maturational adequacy, his social and personal development, his auditory and visual discrimination, his memory and attention span, his interests in reading, his health and freedom from neurological disturbances, and his opportunities for instruction. The same group of correlates naturally apply with equal force to achievement generally.

Mental Age

Of these factors mental age generally has been considered most significant, and yet experience has shown that most poor readers have IQ's between 90 and 110 and that the most severely retarded have been those with high IQ's. We also find that some learners have a MA of 6.5 and do not learn to read; some have a MA of less than 6.5 and learn to read.

Visual Readiness

Mental age certainly is not an adequate criterion. Reading readiness and achievement are a function of multiple factors, including the sensory development of the reader. A major question facing us today is: when do children become visually ready for reading? This may not be until the age of eight. At six the eyes seem to be too farsighted to see clearly symbols as small as a word. The tissues of the eye are too plastic. One writer suggests that the sweep in reading from the end of one line to the beginning of the next causes pressures affecting the posterior pole of the eye. We know that an increasingly greater percentage of children manifest myopia as they progress through school. The reasons for this are not entirely clear. Nevertheless, we ask: would training in basic perceptional and sensory skills during the first year in school be better than conventional reading instruction? Would it be advisable to introduce tasks demanding close vision much later in the educational sequence?

Auditory Readiness

Auditory factors also are significant in reading. To be a good reader the child must discriminate the sounds in words. Lack of hearing makes it impossible for the child to distinguish the elements of speech he hears. And, children do not learn to pronounce distinctions they do not hear. As a result, the reader cannot make the correct associations. He associates the wrong sounds with graphic symbols.

The research indicates that the auditory acuity of six-year old children is lower than that of eight-year old children. Six-year old children also have more difficulty hearing high frequencies than older children. The incidence of high frequency loss is greater among poor readers than among good readers, and among boys than among girls. The poor reader especially is weak in analyzing and synthesizing the visual and auditory into their parts or he cannot unite the parts into a whole. In the former instance he sees an undifferentiated whole. Generally, however, he sees words as a meaningless jumble of structures of words. He either finds it difficult to break words detail. Furthermore, he has difficulty remembering auditory and visual form even after he does see it. How can we help these students acquire these skills? What methods are appropriate to the poor reader with above average intelligence and to the poor reader with below average intelligence?

Sex of the Reader

Many other considerations are of interest here. For example, girls generally achieve better in reading and at an earlier age than boys. Fewer of them become reading disability cases. They show more interest in reading, but read fewer comics. Fewer of them become stutterers and lispers. And, fewer are left-handed. Do girls become visually ready before boys, are they more successful with high frequency tones, or do they excel in auditory or visual discrimination? Do personality factors predispose girls more favorably toward reading? Are our schools designed especially for girls? Do girls learn to develop visual and auditory discriminatory skills as a result of their play activities? Is intelligence more variable among boys and consequently is reading achievement also more variable? Are our materials written primarily for girls? If so, what effect does this have on achievement?

Physical, Physiological, and Neurological Development

The child's physical, physiological, and neurological development also are important determinants of his readiness and achievement. Children with glandular and vitamin deficiencies, hemoglobin variations, heart disorders, nutritional and circulatory disorders,—in short, with almost any physical disability may be handicapped in their ability to make certain responses. And sometimes these deficiencies handicap them in reading. In general, we believe that physical factors are contributory factors in reading disability rather than casual factors. This makes them no less important. They may be more important than we have believed.

We must also study further the relationship between speech defects, motor incoordination, left-handedness, and ambidexterity and reading disability. For example, speech defects frequently are associated with reading difficulties. Children with cleft palate tend to have difficulty with the letters *p, b, t, d, k,* and *g*. Stuttering leads to confusion of the initial sounds of *b, p w, t, k,* and *n*. Faulty articulation results in a general confusion of word sounds. A child that hears a word one way when he says it and another way when someone else says it tends to become confused. We want to know how these speech defects influence word recognition and comprehension and what might be done to help these youngsters.

But more than that, we want to know the etiology of the above group of interrelated disabilities. The common cause, if there is any, must be identified. At present we can only surmise that certain children inherit a predisposition to them or that others have suffered minor brain injuries that give rise to them.

Language development in general and reading achievement in particular depend on the proper functioning of the brain. Injury to the parastriate cortex, for example, makes it impossible for the person to recognize or identify what he sees. Injury to the peristriate cortex makes it impossible to recall what one has seen. Such a person cannot associate the printed word with meaning. We refer to this as word-blindness, and find it especially among our poor readers.

The brain is subject to two debilitating conditions. It may develop inadequately or it may suffer a specific injury. The full significance of minor cerebral lesions has not been established in reading cases. Lesions in the left hemisphere, the language hemisphere, seem especially significant.

Numerous related questions confront us. We want to know what causes reversals and mirror writing. That these conditions frequently are associated with left-handedness and ambidexterity is not very informing. What causes left- handedness and ambidexterity? Correlational studies are not what we need. We must identify causes. Are reversals due to difficulties in differentiating among symbols, to inadequate brain maturation, to brain injuries, or to a combination of causes? Why do certain children find it impossible to note differences between symbols and between symbols and their backgrounds?

We know that children do in fact reproduce forms without any apparent heed to the position they occupy in space. Shapes that point in opposite directions appear alike to young children. A whole word may look the same even though the letters are completely reversed. The question remains: Why do children reverse even after they have been informed that they must progress in reading from left to right? Why do they say "hot" when they mean cold, "up" when they mean down, and North Carolina when they mean South Carolina? How can we teach them to note differences between symbols? And, how early should such teaching begin?

Auditory and Visual Discrimination

These questions are not so theoretical as they might seem. Recent research tends to indicate that proficiency in visual and auditory discrimination may be more closely related to reading achievement, especially in the early grades, than in mental age. Since children generally possess the meanings they need, reading in the first and second grades consists primarily of word identification and recognition.

We know that children who can give the names of the letters of the alphabet generally learn to read. We can only surmise what the relationship might be, but a child who has learned to associate a name with a letter has already learned certain basic reading skills. He has learned to discriminate between graphic symbols and has associated sounds with these symbols.

Perhaps we must develop more skill in teaching differences. Our emphasis should be on word discrimination rather than on matching. In actual reading we do not ask children to match words in a sentence; we ask them to note differences among graphic symbols so they can learn to associate these visual differences with the auditory differencs that they have already learned.

We suggest that the best way of doing this may be to introduce the child to reading by familarizing him with the phonetic consistencies of our language, by giving him a diet of words in which each letter has only one phonetic value. This still gives him an opportunity to learn the functional meanings of letters. It is difficult for youngsters to detect differences in words, especially phonetic and structural differences, and to learn these effectively, if they are given a diet of phonetic and structural inconsistencies. The Committee on Diagnostic Reading Tests is testing the hypothesis that auditory discrimination skills are more closely related to learning words that are spelled according to word attack principles and that visual discrimination skills are more significant in learning words that do not follow such principles.

Nevertheless, auditory and visual discrimination are not sufficient criteria of readiness and achievement. The facts of multiple causation in reading disability are clear. Some children are proficient in auditory and visual perception and still make slow progress in reading. We must determine the best criterion or combination of criteria for predicting reading readiness and achievement. If, however, the major activities in the early grades are visual and auditory discrimination, we need tests that measure proficiency in each.

Motivation and Interest

Motivation and interest are additional factors in reading readiness and achievement. We know that children learn to read when they are motivated by basic personal needs. Gradually, as they become more skilled in reading, reading becomes a motivating force in its own right. The reading skill turns into an interest that is self-propelling.

There are many elements in this sequence about which we have very little data. For example, we have much better techniques for identifying children's interests than for developing them. We have emphasized the "teaching" of interests rather than the "learning" of interests.

We must examine the role of television in promoting interest in reading. And, we must explore the hypothesis that "interests develop through the acquisition of *dislikes* by individuals whose initial attitude is favorable toward everything." We must determine how the "self-concept" is related to interest in reading. We want to know how to get youngsters to choose literature of quality.

We also must know how to give recognition to the student's "seeking" behavior while at the same time lead him beyond his immediate interest. Individualized Reading Programs must be carefully evaluated. Can reading be totally individual or is systematic instruction a necessity? Can the reader choose wisely his own materials? Is individualized reading more adaptable to the slow, average, or gifted learner? Do individualized programs give adequate training in reading skills? Do they make provision for readiness? Do individualized reading programs minimize interference in learing or do they tend to increase it?

Readability of Materials

Closely related to interest is the readability of the materials. Certainly a child cannot retain an interest in materials that he does not understand; in short, he cannot give prolonged attention to material that for him is unreadable. We must make many practical decisions about the book's readability. We must decide what is adequate understanding. And, we must be concerned lest our books, especially our basal readers, become too simple.

Readability formulas help us to make many of these decisions. Unfortunately, we are not certain that the factors that make materials hard or easy to read can be identified or measured. We must discover the importance of the density and strangeness of the facts, pictorial illustrations, the abstractness of the words, and the organization of the material on the readability of materials. At present it is difficult to say that the grade-placement arrived at through a given formula is an adequate criterion of the specific level of reading ability required for the materials. The grade placement is even less usable to assign a book to a specific grade level. It is almost certain that many children in any given grade will be unable to read it. We want more uniformity in grade-placement estimates between the various formulas. And, we want formulas designed for all levels of material.

Emotional Development

The emotional development of the reader is another factor that greatly influences a child's readiness and achievement in reading. The incidence of maladjustment among poor readers is significently greater than among good readers. Why is this so? Does proficiency in reading tend to promote good adjustment? Does reading deficiency cause a personal maladjustment? Does personal maladjustment cause reading failure or does reading failure cause personal maladjustment?

Reading failure certainly makes it more difficult for a child to develop emotionally in a normal manner. Failure makes it difficult to achieve self-esteem and to gain the esteem of peers and adults.

Nevertheless, personal maladjustment may cause reading failure. Painful emotional events during his early efforts at reading may turn the learner against reading. The child may displace his resistance from the mother to the teacher or from another activity to reading. Frequently, a vicious circle is set up. Emotional maladjustment causes reading failure, and reading failure leads to a more serious maladjustment.

Apart from the fact that we have not learned to deal adequately with many emotional problems, we must discover when we should use therapy and whether the reading teacher should engage in this activity. The role of bibliotherapy must be clarified. We want to know whether teachers have the skill to guide the child in the therapeutic use of books. The benefits of bibliotherapy are rather obvious; the dangers are sometimes concealed.

Reading as Learning

Finally, reading is not only a skill that must be learned; it is also a means to learning. We will pass over any consideration of the study process itself, and raise a few questions about reading in the content areas. We know that reading in each of the content areas requires special skills. How to develop these skills has not been clearly determined.

We want to know how best to survey materials, to formulate the purposes for reading, to develop flexibility, to handle graphic and illustrative materials, to skim and scan, and to read critically. We want to know how to teach children to follow directions and to think through a sequence of ideas. The tendency to confuse the symbol with the referend is especially prevalent in content-area reading. The readibility of the materials presents additional difficulties.

The Developmental Program

This paper would not be complete without some comment on the reading program. Whereas we were accustomed to speak of basal and remedial programs, we now speak of developmental programs. The principles of such a program include the following: development is a function of both nature and nurture; the child is a product of the interaction of these two forces; and these are accountable for the vast differences among children. Such a program extends through the elementary and secondary grades and college. It seeks to meet the needs of every child by differentiated instruction. It lets the student progress at his own success rate to his maximum capacity.

Unfortunately, practice is far different from theory, and we are groping for a way of providing for individual differences. We have progressed to the point where we no longer make adjustment for individual students by failing them, but individualization of instruction is still the major problem facing schools today. Homogeneous grouping does not seem to be the answer. Heterogeneous grouping with flexible subgroups presents numerous practical problems.

Many other facets of the developmental program must be evaluated. Reading tests fall into this category. What is the value of readiness and comprehension tests? Do they make a distinct contribution? We know that too frequently comprehension tests measure what is in reality partly speed. They test memory rather than understanding.

Our tests generally suffer from numerous basic deficiencies. Tests supposedly measuring the same thing frequently disagree on the level of pupil achievement. Children score higher on tests than their actual reading level appears to justify. Unfortunately, tests still do not require complete understanding to get a correct answer. Reading tests, in other words, frequently permit the child to get correct answers even though the child cannot use the correct process. The diagnostic teacher, especially, is more interested in how the pupil attacks a reading task than in his total score.

Reading tests also are not testing an accepted variety of outcomes. No one test seems to be measuring all the desired outcomes of reading instruction. Traxler, for example, found that only one of 28 tests measure the ability to perceive relationships. We certainly have not constructed tests in which "the weight of each skill in the total score will be proportionate to the weight of that particular skill in the total reading process."

We also want to know the relative effectiveness of the various methods of teaching reading. Is the kinesthetic method valid only for remedial purposes or should it be given more emphasis on the kindergarten and first grade level? Children learn kinesthetic skills first and might their kinesthetic abilities then be more suitable in early reading instruction than is the emphasis on a child's auditory and visual skills? What is the place of the non-oral method, of filmstrips, of lantern slides, of workbook instruction, and of individual library reading? What are the values of reading readiness materials such as the experience charts? What, if any, are the benefits of teaching children to discriminate geometric forms, pictures, or objects? What are the initial steps in learning to read and what sequence in teaching the basic skills ought we to follow? What is the appropriate sequence in the teaching of the phonic skills? And, what are the relative merits of different methods of teaching sounding?

We have asked many questions. As we ponder the direction that reading programs might take, we foresee a greater emphasis on reading as a mental process. Reading will be taught as one element of the total developmental process. We will speak of the language arts program rather than of the reading program. Our beginning instruction will emphasize the analytical and the synthetic methods as correlative aspects of one process. We will emphasize phonetic consistencies and will spend considerably more time on the development of visual and auditory discrimination skills. We will put more emphasis on reading as a tool for learning and living, and will put greater emphasis on the suitable conditions for learning to read. Finally, we will attempt to individualize learning without losing the benefits of group instruction.

Motivation and Specific Instructional Materials In the Reading Program

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The teacher of reading, like other educators, is engaged in the process of providing a meeting place for the student and the world of learning. Like the story of the proverbial unmotivated horse, however, sometimes the water and the trough are present, yet no drinking takes place. The horse isn't thirsty, and the educator's student just doesn't see any real need for learning. As teachers, we may worry over the materials which make up our instructional bill of fare and look fruitlessly for the perfect package deal to meet all ills, as if the ideal panacea could create a thirst where indeed there is none. It is to this problem of motivation that our first remarks are directed.

Motivations are internal springs to action, promoted by needs, emotions and organic states which lead to goal-seeking behavior. Why a person chooses a particular incentive to help him attain his goal is, of course, based on many reasons—cultural, social, emotional, and peer group aspirations, to name only a few. With a constant incentive or stimulus, the response or choice will vary according to the motivation or state of the student. We know that students do not respond in the same way to a given situation each time it is encountered. Thus the unvarying program, offering always the same methods and materials, cannot keep up with the dynamics of the learner. Thus our first problem: what factors cause a person to choose reading as one avenue to need-satisfaction and goal attainment?

Before an individual will engage in activity of any kind, he must be stimulated for that activity in some manner. Felt needs, as we have said, form the basis of this motivation, and the action is relative to the individual's awareness and acceptance of the fact that a particular behavior pattern is the best possible one open to him.

Many of the factors which motivate are related to the continuum of tasks of our maturational and social development. Love and affection, for example, are primary emotional needs. Yet the mother-love relationship of early childhood is not totally adequate for the teenager who seeks the acceptance and respect of peers, nor yet are either of these totally satisfactory to the young man contemplating marriage. He selects from his environment those experiences which help him interpret and organize his feelings and needs into an understandable completeness.

There is, probably, a central core of interests which may be common for a particular instructional group, as well as a central core of interests specific to each individual within the group. We give lip service to the need of selecting reading materials with reference to these interests and goals, yet perhaps it is honored more in the breach than in its fulfillment. Books and materials dealing with the prime motivators of love and affection, belonging, approval, independence, adequacy, prestige, the love of adventure, curiosity, and the thrill of discovery often are a part of the equipment of the reading teacher. But not all stories of adventure are appealing to all readers interested in adventure, nor are all bits of curious information interesting to most people. Materials selected on the basis of a group's interests may still be inadequate for individuals within the group. A few evenings ago I was using a reading about sea snakes with a community adult group. After the session one of the ladies said to me, "If you want me to read your stuff, don't have any more stories about snakes. I hate them." In a study by Bernstein,[1] two reading selections equivalent in difficulty were chosen, one content emphasizing teenage problems and doings, while the other dealt with adult situations. Given to a teenage group, it was found that they read with greater rate of comprehension those materials dealing with their own problems. It was also noted that the lower a particular person's reading ability, the greater was the relationship between his interest and comprehension level. Problems of physical development, sex roles, personal appearance, peer acceptance, self-confidence, identification, vicarious escape, developing a set of values, and a faith for living would very likely hold the attention of many of these young people, while materials selected for an adult group would probably best deal with such topics as job satisfaction, professional success, or how-to-do-it books for the man repairing his lake cottage.

If behavior springs from motivation, and motivation from need, it may further be stated that the individual must be able to identify his need and be aware that reading will meet it. Vague need identification with little or no guidance in selecting materials does not result in goal satisfaction. A study by Bertha Handlan[7] indicates that simply encouraging students to read without guidance in need identification or book selection results in reading of a rather purposeless, random sort, with little regard to the needs that reading could have helped them meet. A study by Leavell and Wilson[12] in Dallas is probably familiar to most of you. Two hundred and ninety tenth grade students were divided into six instructional groups for reading, with a different instructional method used for each group. Of the variety of methods used, results indicated that the *guided* free reading program, including an interest inventory and individual and group conferences on book selection, not only met the need for growth in skills but also added individual initiative and interest.

Well-meaning attempts at guidance in need identification and book selection are not enough. A recent study at the University of South Carolina[13] indicates how unsuccessful these attempts are when they are not coupled with sound methods of procedure and direction. In a large urban junior high school, the eighth grade had been divided into thirteen groups according to scores on a battery of achievement tests. Methods and materials differed for each group relative to levels of homogeneity obtained. Theoretically, this situation might appear ideal to some, but the research data collected indicated that in almost no instance were the difficulty and interest levels of materials matched with the groups for which they had been selected.

Ideally, selection of materials for reading improvement should be based on the needs of the individual, but for the instructor with large college groups, or for the person giving a short program in an industrial or business establishment, there are practical considerations which limit a total individual approach. Even here, however, there must be at least a face validity to the materials selected, with a meeting of purposes and needs with greater preciseness than was done in the preceding illustration. Matching reading materials to a group suggests, at least in part, that the materials have a level of difficulty and content familiar to the group's common needs or understandings, through which are channeled the skill-building concept we wish to include for our program. It is generally recognized that instruction must start from the known and the familiar and move outward toward the lesser known. The military, for example, has recognized this fact in their basic reading instructional materials, such as *Private Pete*. To illustrate further, if a group were made up of businessmen, instructional experiences in reading improvement should deal with business experiences, not academically oriented materials which make up a large part of reading improvement literature. The businessman perhaps should be encouraged to read more widely than just within his particular field; however, if a part of the materials selected for skill-building also answer some of his familiar problems, reading is then seen as a part of a successful solution, and success leads to a repetition of the activity that created it. Thus, with the businessman, success with the familiar motivates him, and with proper continuing guidance, he will likely attempt greater diversity in his reading.

The same stock materials for every group, no matter how different their backgrounds and needs, are as purposeless as the king who either stretched or sawed each of his house guests to make them fit his bed.

One purpose of the reading improvement program is to present a series of reading skills in a more or less coordinated fashion. In our prior remarks, we have stressed the selection of materials which act as a vehicle for the skills we wish to teach. If the skills part of our program is to be effective, the activity must be seen as meaningful and purposeful, with understanding as to how a particular exercise or reading helps to produce certain desired results. Understanding is a basis for transfer—practice alone does not make perfect, nor does it motivate. Thus, for a person to undertake an activity, he must see how it is to meet his need, whether it be that of building a better vocabulary, improving rate, or gaining new skills in comprehension. Not only should the transfer value of a particular exercise be understood, but exercises should be presented in such a manner that the movement from each to the next is seen as cumulative toward the purpose of the activity. For example, a sequence of events within a session on rapid reading might psychologically move from an exercise on phrasing, to a speed film presentation, to a final reading in which the text is presented in book fashion. Unless the movement of events is seen by the student as leading toward a completed goal or closure, the value of the session as an incentive to learing will appreciably be decreased. Further, practice of any complex process results in learning only if the learner varies his performance on successive trials. This suggests that the reading program should include many types of materials and exercises that illustrate and give practice in a particular skill.

If the learner recognizes his need, believes that reading will help him in satisfying it, and if guidance is given him in making his selection, real motivation for reading should certainly be present. If skill-building activities are understood and meaningful, and if they are seen as a configuration building toward a functional activity, then motivation should take place for these activities. Gauvey[5] points up the ultimate individuality of learning when he calls instructional aids used in this way *learning* aids rather than *teaching* aids. To quote from him, "Not sound films, nor educational comic books nor all the audio-visual aids in the world can lure a student from his sweet repose, unless these devices are used as *learning* aids rather than *teaching* aids. Teachers can plead, beg, and tempt, but real learning springs from the student."

The integrity of the student's right to learn or not to learn cannot be violated; thus, the question may be raised as to whether reading improvement programs should not always be voluntary. If the student does not recognize his need and is not convinced that reading or a reading improvement course will help him, there is every reason to believe that it will not.

It may be presumed that some instructors do teach captive audiences created by administrative fiat. If these students do not believe that their needs can be met through the reading program, then to begin at once with a skills-drill program would seem to be a questionable starting point. Perhaps a beginning utilizing a fairly unstructured interchange of ideas through group discussion, allowing the student time to search out his own feelings and needs through the support of the group, would have merit.

Because learning must spring from the student does not mean that the instructor himself is not an important factor in the choice of what students desire to learn. Indeed, the dynamic quality of the instructor, his ability to organize and present material in a meaningful fashion, and his skill in producing a climate of interest and expectancy is of great importance. The Law of Effect, or the fact that we are motivated to learn that which is pleasant, certainly holds true in this instance. That teachers do influence the behavior and attitudes of students is attested to by the study of Kroll[10] in which pupils' attitudes are shown to shift toward the teacher's attitudes after the influence of only a semester's work.

Many studies have been made and much has been written about the effect of emotional conflict upon the student's choice of incentives to action. For example, Kunst[11], taking a psychoanalytic approach, feels that many poor readers have become so by having had unfortunate experiences with the natural curiosity motive. The person may either fear severe punishment or danger to himself if he gives free reign to his curiosity, or curiosity may become distasteful because it has been overdone or come to be satisfied too early. Thus, as reading is seen by the person as a means of satisfying curiosity, he has a conditioned attitude against it. Adjustment disorders, inhibiting the function of the usual motivators, should be considered by the reading improvement instructor, especially since the incidence of emotional disorders is high among poor readers. A survey of the literature dealing with adjustment problems and reading improvement points out the following suggestions.

The instructor, maintaining a casual and confident attitude within the group, keeps optimism alive so that the poor reader will not consider his condition critical and thus hopeless. The reduction of the sense of personal inadequacy and the decrease of frustrations will in most cases increase motivation and the ability to read. The structure of the program allows for consistent appraisal of the student's progress, and this information should be available to him. The tonic effect of progress in developing basic reading skills and study habits helps also in building self-confidence in the student with the result a bettering of reading skills. For some, the specialist must direct his attention to the reorientation of the emotional turmoil of the pupil and only secondarily to the techniques of reading. For all, there should be a placement of emphasis, not on pathology, but on the opportunity to re-experience, again and again, in a safe setting, the situation they have been avoiding.

A second major problem of the reading specialist is to have instructional materials available which are suitable for the student motivated to use them. We have already discussed the incentive values of materials chosen on the basis of the student's felt need. If this were the answer to the whole problem, our task would be far simpler than it is. The motivated student still has specific skill problems for which specific treatment is needed. Unfortunately, motivation does not inform the student of the technical nature of his weakness; diagnostic evaluation is still necessary with prescribed remediation or development relative to the findings.

Perhaps one of the most common questionable practices in the selection of materials is one based on the tacit assumption that reading is a simple activity, made up of a minimum of arbitrarily selected skills. A school system or business establishment may purchase an instrument for reading improvement and assume that the minimal skills exercises included are all that are needed to successfully improve the reading habits of its students. Occasionally our clinic is asked, for example, to verify the use of advertised handy pocket flash devices, guaranteed to double the client's reading speed, whatever his present rate. Or again we are asked, usually by parents, to recommend phonics records for their teenage son, who may be having difficulty reading in social science. It may be that work on perceptual span or rate of recognition on the one hand, and phonics instruction on the other, is what is needed, but neither of these is a cure-all for everyone with reading difficulties. It is of course true that a motivated student with an incentive to read rapidly will feel that his needs are being met only if instruction begins with emphasis on rate. Certainly the instructor has a responsibility to reorient this person, if objective test results indicate that the student's problem is one of comprehension or vocabulary weakness rather than rate *per se*.

In selecting specific instructional materials, the instructor should recognize the range and complexity of skills that go into the act of reading and have materials available which offer guidance and practice for them. Not all manuals or workbooks at the college and adult levels offer a complete rationale of reading. Perhaps the instructor of developmental reading might check these factors occasionally so that he may continue to offer a balanced program.

Factorial studies on reading by Davis[2,3,4] the *Forty-Seventh Yearbook* Committee of the National Society for the Study of Education[8] and others indicate that reading skills include the ability to determine a writer's purpose, intent, or point of view and the ability to identify literary devices used in a passage, and its tone or mood. Further, the reader must have sufficient word knowledge and be able to select the appropriate meaning for a word or phrase in the light of its contextual setting. The reader must also be able to select the main thought of a passage, answer questions that are answered explicitly or implicitly in the passage, and be able to follow the organization of a writing. Rate, applied to this setting, refers to the ability to use these skills according to purpose and need with an optimum of time and energy expenditure. The two-or-three-skills approach or the mechanical program leaves much to be desired when viewed in relation to all the skills which make up reading.

An early study by Traxler[14] on the opinion and research of controlled reading programs obviously points attention away from sheer mechanics to thought processes themselves in an attempt to facilitate speed of reading comprehension. Gray[6] also scores against the over-simplified program when he says that: "The central factor in the speed of reading is not the control of eye-movements, as is often assumed, but rather the rapidity with which meanings are grasped. Definite steps should be taken, therefore, to arouse interest in the content of what is read, and to develop an appropriate background of related experience, and to stimulate mental alertness on the part of the reader." A recent review of research by Karlin[9] on reading improvement materials continues to indicate that stress on reading as a total process is more effective than a program which makes practice available in only a few of the skills of reading.

Summary

In this discussion of the values of motivation and specific instructional materials, it has been pointed out that neither is sufficient unto itself, but that each must be supported by the other. Reading must be seen as contributing to a person's basic felt needs or he will not select it as meaningful to goal attainment. Various causes for lack of motivation were mentioned, and suggestions were attempted as possible answers to some of the many problems the instructor faces in his attempts to hold a group for reading improvement work. Some suggestions were also made relative to the selection of specific instructional materials, including comments on readability, adequate coverage of skills, variety of practice materials for each skill, and proper identification of a person's need for instruction.

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International Students As Readers

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More than forty thousand foreign students (or, preferably, international students—IS) are now studying in the United States. Although most of these students may feel that they are well qualified to speak, read and write English, teachers of these students have sometimes found otherwise.

It is often disheartening for the international student (IS) to be asked to study more English when he comes to the United States, especially if he is a science student, or has studied English for a number of years at home. Nevertheless, he may need help in English.

In the beginning course for the IS the emphasis is put on spoken English. The general aural-oral technique is followed in the classroom. Supplementary help from drill instructors and tape recorders are used in laboratory meetings. However, even at this elementary level there is emphasis on spelling. Of all components of the English-learning process, nothing seems more like success to the IS than his ability to spell English correctly. His equation: To spell English equals to know English.

Concommitant with the desire to learn to spell correctly is the sometimes mistaken notion that grammar breeds success, particularly grammatical terminology. Notwithstanding the erstwhile effort of some descriptive linguists to the contrary, there is a need for the IS to learn grammatical terminology. Otherwise, an IS who knows aural-oral but does not know the terminology will not be able to pass English 101.

Therefore, English 100A for the IS includes terminology. The IS learns from linguistically orientated texts which use a modicum of terminology and a maximum of aural-oral drill.

Beyond this level of learning English comes an opportunity for the instructor to introduce some systematic efforts at reading in English. However, this reading is usually postponed until the second semester English course for the IS: English 100B.

In English 100B the IS has been readied for reading by *listening* to much reading in English 100A. In fact he is carefully tested on his ability to LISTEN and take notes. The instructor reads passages of different lengths: first, of a sentence length; then of two or three; and finally a whole paragraph.

In the first attempts at this procedure during English 100B, the instructor uses easy materials. But later he switches to such materials as passages from currently used textbooks, manuals and college-level reading on the *Atlantic*-plus level. After these exercises are dictated, the IS has a short time to take notes in English of what he has heard. Sometimes he is asked (during a longer time) to write everything he remembers. This is very difficult.

The notes are corrected by the instructor according to spelling, accurateness, and decency of English. They are returned and the students are asked to reconstruct in writing the original passage from their notes. This in turn gives them opportunity to use their oral English with their written English.

Finally, the IS is ready to read. So far, we have been speaking about a kind of "IS reading readiness." Our attempts at helping the IS student at this level assume that he can read some English. In an endeavor to find appropriate material, the following two pieces of fiction were chosen: *My Antonia* by Willa Cather and *The Red Badge of Courage* by Stephen Crane. Both are well-written novels. We want novels with sufficient motivation so that the IS will want to read them. We believe that underlying a great proportion of the IS's reading problems is a simple lack of common American knowledge about things American. These two novels deal with 19th and 20th century backgrounds common to a well-read American, but probably literally foreign to the IS.

We begin with a well edited edition of *My Antonia*. The instructor helps to fill in for the students things American at the time of the immigrant settlement of the Midwest. The IS is interested in this development of America from abroad. He is sympathetic to the desires of the immigrant Bohemian family which Willa Cather has carefully drawn.

The IS has heard much about the Civil War, but has not actually read about it. *The Red Badge of Courage* is a psychological story of a man and a war. Since it does not have to be an American war, the IS can transfer his reading of it to situations from his own country. He learns about American thinking at the time. The job of English 100B is to help bridge the "cultural gap". The instructor gives many Americanisms in both novels which the IS does not know. It would be unfair to put the IS in a regular English class with an average group of American students who by "osmosis" knew these words and did not need to jump the "cultural gap".

It was decided to find out what the IS read "on his own". There is a need for a comprehensive study of the amount of reading done by the IS.

Each IS was asked to list the books and magazines, besides texts, which he had read in any language since the summer holidays. These questions were distributed and collected by the Baylor International Community. The members, international and American, took this on as the kind of project which they felt could benefit the entire International Community. The assumption was that it would show that the IS was often more serious and better read than the American student. Only a more comprehensive survey can verify this.

A summary of materials read by a representative number of the students indicates the extent of reading done other than textbooks. One graduate student in English reported having read five weekly magazines, one monthly magazine and five books. An Argentinian graduate student in English read ten books. An Italian upperclassman in mathematics reported that he had read six weekly magazines, three scholarly journals and five novels. A graduate Japanese student in English reported two weekly magazines, two English novels and five Japanese novels. A Lebanese graduate student in Chemistry reported four weekly magazines, three monthly magazines, one quarterly, two scholarly journals and four books. One Cuban upperclassman in business had read three of Mark Twain's books and one book relating to business management. One Chinese freshman reported having read one Chinese magazine and three books including *How to Repair Your Automobile* (in Chinese). One Chinese upperclassman in political science reported the reading of thirty books, nineteen magazines in English and four magazines in Chinese.

Reading in sources other than textbooks reported on the basis of averages per student was as follows: Weekly magazines, 3.6, monthly magazines and journals 2.2, books 7.5.

A wide range of reading was noted. There is an indication of the popularity of American novels. A much more comprehensive study will be necessary to properly assess the trend of IS reading and to discover the comparison between the IS and his American counterpart.

Reading Improvement As a Counseling Procedure

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In a paper read at the fourth meeting of the Southwest Reading Conference in 1954, I pointed out three types of college reading programs. First, there is the machine or skills-oriented program with primary emphasis upon increasing rate of reading or improving specific skills such as comprehension or vocabulary. Secondly, there is the broader program that stresses insights, skills and counseling in equal proportions. Third, there is a clinical program using psychotherapeutic approaches almost exclusively.[11] In that paper, we suggested that college reading programs of the future would probably employ all these various approaches to reading training in varying degrees according to the goals of the course. We also suggested that there would come a decreasing use of mechanistic and drill procedures accompanied by an increasing dependence upon counseling and psychotherapeutic techniques.

These predictions of the manner in which college reading training courses would develop reflect, of course, certain beliefs. They imply that we believe the primary purpose of such courses is to improve the adjustment of the student to the demands of college life. This is really the ultimate goal of reading training. The final aims are not actually improvement in rate or other reading skills, or the improvement of grade point averages.

Reviews of the literature such as those by Bliesmer[2,3,4] and Sommerfeld[10] in the yearbooks of this conference show that many programs report increases in rate and some show improvements in other skills. However, these skill developments bear little relationship to improved grade point averages except in specific college courses or majors. Most reading training courses fail to show increased overall academic success for their trainees. In other words, if the goal of reading training courses is to improve reading skills in the hope of increasing academic grades, then most programs are not accomplishing their goals and are not justifiable. Yet, in spite of this apparent failure to prove their values, we see increasing enrollment and wider establishment of reading training courses each year. There must be some justification in the minds of college administrators and in the personnel teaching these courses.

We suggest that the real reason reading courses continue to be offered is that administrators and instructors believe that the courses will help the college student to adjust to college life. This is an implicit belief, and, as I suggested earlier, is actually the primary purpose of reading training. Most reading instructors would agree, I believe, that what they are trying to do is to improve the personal organization, and the efficiency of the college student in dealing with the demands of college life. Stated then in its broadest terms, college reading training is intended to improve the personal adjustment of the student while in college. Improvement in rate or other reading skills, better grades in some courses, prevention of drop-outs, improved study habits, and reduction of academic failures are only minor manifestations of the better adjustment of the student to the demands of college.

Thus far, we have tried to justify the stand that the most significant goal of reading training in the college is a psychological goal—the better overall adjustment of the student. This goal is synonymous with the aim of practically all counseling offered to the student. If you will grant this similarity, then it is apparent that reading training may be considered part of the total program of counseling services offered to college students. The fact that the reading course may be mechanized or stereotyped does not deny this relationship with counseling. Even the most prominent proponents of training machines emphasize that their primary values lie in such psychological phenomena as motivation, attention, and ego-support[6].

Because of the belief that reading training is actually part of the broader counseling program, we expressed the prediction in the 1954 paper that reading courses would make increasing use of counseling and psychological techniques. A review of recent reports on college reading programs has not fulfilled this prediction, however. It is true that there has been an increasing volume of literature stressing the importance of achieving better personality adjustment among poor readers but most of this relates to programs at the elementary and secondary levels rather than to college programs. In

Bliesmer's reviews of the research on college and adult reading programs, there are only a few articles in which the personality element is stressed. Most college programs appear to be pursuing the secondary goals of skill improvement, as though unconscious of their real, primary function.

Only a few college reading programs are growing in the use of psychological or counseling techniques; and very few emphasize outcomes of the training other than gains in measured reading skills. Yet there are observations in the reports of these programs that reemphasize the significance of a psychological or counseling approach. For example, some experimenters are recognizing that the motivation of students applying for remedial training may differ significantly from those who do not apply[8]. Reading training may well be a form of psychological therapy for anxious or disturbed college students, and their improved general adjustment may be manifesting itself in spontaneous increase in reading skills. This may mean that the gains from reading training may really reflect recovery from feelings of inadequacy, reduction of anxieties and the release of students from some of the problems which led them to seek reading training in the first place. Bills'[1] pioneer studies of play therapy with children confirm the fact that reduction of tensions and anxieties among disturbed children results in spontaneous improvement in reading. Undoubtedly, many of the college students who apply for reading training are unconsciously seeking more help than increased reading skills. Yet, as we have said before, most courses measure only gains in reading skills and consider these the most significant outcomes of the instruction.

In a small-scale study of delinquent adolescents who were also retarded readers, Roman[7] explored the values of three types of approach for gains in reading and social adjustment. He found "tutorial group therapy," a group process emphasizing both remedial work and non-directive therapy, superior to group remedial work or interview group therapy in producing both reading and adjustment improvement. Smith, et. al.[9] also varied the classroom climate for groups of students according to their personalities. A directive approach induced maximum progress for anxious, disorganized students while anxious but rigid students were apparently not influenced by the choice of approach. Moore[5] found that the ability to learn skimming was related to personality patterns in that certain types found it very difficult to feel free enough to do this rapid reading. The relationship of reading performances to temperament and personality is shown also in the norms of the Diagnostic Reading Test for various populations. Students majoring in engineering or science, for example, differ in many reading skills from those majoring in liberal arts or education. Reading performances may be as much a reflection of the interests and personality of an individual as his choice of a college major is.

These few research studies of the personality and psychological aspects of reading training are certainly not conclusive. We will have to depend upon reading research at other levels for definite suggestions. If we can generalize from the studies of the personalities of younger retarded readers, certain common patterns of resistance to authority figures, defensiveness, and feelings of being different are present in marked degree.[12]

Let us look at some of the common gains from college reading programs and interpret them in terms of their possible personality correlates. Gains in reading rate may well reflect increases in self-confidence in dealing with college-level materials. Rate gains may imply that students are able to abandon the cautious, perfectionistic reading dictated by anxiety and fear of failure. Increases in comprehension are often more difficult to achieve because of their dependence upon reasoning and other intellectual capacities. However, when comprehension does rise, it probably indicates that through release of tensions the individual is achieving freer use of his thinking potentials. Rapid vocabulary growth is commonly most difficult to achieve because of its dependence upon skill in word-analysis, intelligence and cultural backgrounds. Yet we often see attitudinal changes such as aroused interest in words and an analytic attitude toward their meaning and structure which reflect in improved reading.

On the other hand, most reading clinics have experienced failure with the rigidly cautious student, or the timid, somewhat disorganized pupil. Still other failures are met with those who block up on meeting a difficult word, or cling to childish techniques such as spelling or pronunciation to reveal meaning. In both our successes and our failures with students, the personality of the student is a most significant factor.

Perhaps we have been overemphasizing the importance of personality for certainly there is more to counseling than understanding the personality of the client. What then must reading training programs do to achieve their primary purpose of helping the student to adjust to the demands of college life.[7] First, acceptance of students for reading work must be based on interviews and personality analysis. This diagnosis should attempt to identify any other problems present in the students' lives which may be related to their reading performances. The instructor must try to determine whether the reading performances of the students are the reflection of the other adjustment problems. At this point, the reading instructor will refer students to other clinics and specialists such as psychiatrists, psychologists, speech therapists, marriage counselors, etc. for the type of counseling or treatment the student appears to need.

With the advice of these other specialists, decisions will be made regarding admission to reading training. The questions which will have to be answered are: Can this individual really learn to read better? Will reading training help his personal organization and college adjustment? Or will the training be inadvisable in view of his other problems?

Following the selection of students who might benefit from reading training, there will be detailed planning of the nature of this program. First, the personality patterns of students will be balanced with the social climate to be created by the instructor. Some students will be assigned to directive, textbook-oriented courses, others to supportive machine training courses, others will be offered a laboratory course with a minimum of direction and still others will be given an individualized but closely supervised program. In these various groupings, emphasis upon particular reading skills will also vary according to personality needs of the students. Such elements as the amount of self-planning by students, the ease with which success is achieved in various tasks, and the selection of practice materials to provide insights or drill will also be manipulated by the instructor in various groups.

These are only elementary indications of the ways in which reading training programs should grow toward a broad counseling approach to the problem of improving reading skills. We have stressed only one facet of the student's adjustment, that of personality or social adjustment. Reading training is also interwoven with the vocational and academic adjustment of the student. As reading programs broaden to meet their primary goal of aiding the student to make a satisfactory adaptation to college life in all aspects, the training will inevitably attempt to relate to many of the counseling needs of the student.

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The Cloze Procedure—Its Validity and Utility

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The cloze procedure is a recently developed technique for the construction of tests to measure the effectiveness of communication. This technique was introduced in 1953 by Wilson Taylor, who was at that time a graduate student at the University of Illinois. Although a few articles and papers on the cloze procedure have been published during the past five years, it is still relatively unknown among specialists in the field of reading. Indeed, it is little known in the general areas of psychology and education. The little use which has thus far been made of the cloze procedure in these professional areas is due, in part, to the inevitable "social lag" existing between publication of a new idea and the diffusion of this information among members of a given social group. Communication about the cloze procedure to specialists in reading has not been facilitated by the fact that written accounts of the technique have, for the most part, been limited to three unpublished doctoral dissertations, an armed forces technical memorandum, and several publications in the field of journalism. This is unfortunate, for the cloze procedure has tremendous potentialities for practical use in the field of reading. It can be adapted to the study of any communication component (i.e., writers, messages, or readers), and cloze tests can easily be constructed and scored by personnel who are neither experts on the subject matter of the test nor in the intricacies of test construction. (This last statement should not be construed as a reflection upon the degree of "expertness" of professionals in the field of reading.) Thus far, the potentialities of the cloze procedure as a research tool or as a technique for use in reading clinics or classrooms have scarcely begun to be realized.

In presenting this paper, it is not my intention to provide answers to many specific methodological questions which would enable one to make effective use of the technique in test construction. Instead, I shall present a summary of evidence concerning the empirical validity of the procedure as a technique for measuring readability, intelligence, pre-reading knowledge, and several components of reading comprehension. In addition, I shall offer several suggestions concerning the usefulness of the technique. Theoretical problems will be considered only in so far as they affect validity or utility. But before attending to these matters, let me present a brief description of this technique which, I assume, is new to most of you.

Rationale of the Cloze Procedure

The word "cloze" was coined by Taylor from the *Gestalt* concept of "closure", a tendency for an organism to form a complete whole by filling in gaps in a structure. In constructing a cloze test, a message is mutilated by deleting certain words and substituting underlined blank spaces of constant length. A person taking the test is instructed to guess the precise word which was deleted from each space. If, for example, a person taking the test finds the statement, "The professor assigned a .... of readings to his students," he may form a complete structure by writing the word "book" in the blank space. Provided that the original message contained the word "book", the subject will receive credit for the correct answer only if the exact word "book" is filled in. At this point you are no doubt thinking, "A structured whole could be formed by filling in the word 'selection' or 'group', etc. Why does the respondent have to fill in the precise word that was deleted?" Before answering this question we must first consider the rationale underlying the use of the cloze procedure.

A "cloze unit," as defined by Taylor[8] is "any single occurrence of a successful attempt to reproduce accurately a part deleted from a 'message' (any language product) by deciding, from the context that remains, what the missing part should be." To the extent that the reader and the writer have similar backgrounds of experience, interests, language habits, etc., the reader should be able to make accurate predictions of words which have been deleted. In the words of Wilson and Carrell[13], "The underlying logic of the method is as follows: . . . If the encoder producing a message and the decoder receiving it happen to have highly similar semantic and grammatical habit systems, the decoder ought to be able to predict or anticipate what the encoder will produce at each moment with considerable accuracy. In other words, if both members of the communication act share common associations and common constructive tendencies, they should be able to anticipate each others' verbalizations." *Thus, the cloze procedure is an objective measure of language correspondence between reader and writer.*

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It may be inferred, however, that the ability to make correct word predictions of the precise words deleted in a cloze test is indicative of the respondent's grasp of "meaning" contained in the message. The ability to predict the precise word used by the writer is more indicative of the reader's understanding of the writer's total meaning (with all its semantic and stylistic connotations) than the prediction of a synonym with similar, but never quite the same, connotations or the prediction of another word which merely produces a plausible sentence. Empirical evidence related to this point will be presented in a later section of this paper.

Since it is possible to study the correspondence in the language habits of the reader and the writer as a function of writer, message, or reader experimental variables, the cloze procedure can be used to study the communication process from several viewpoints. Thus far, it has been used to study readability [7,8,11,12] and information[10] (or lack of redundancy) of messages, knowledge,[3,9] comprehension,[2,8,9] and intelligence[2,9] of readers. It has not, thus far, been used to study writers as such.

Comparison with Similar Techniques

In constructing a cloze test, the words to be deleted are selected by a mechanical procedure such as leaving out every 5th or 10th word or by selecting words through use of a table of random numbers. Words may be deleted throughout the length of the entire article or deletions may be restricted to samples of lines from the total passage, provided that the line samples are chosen by some random or "every nth" procedure. According to the purposes of the test constructor, word deletions may be made without reference to the type of word selected or may be restricted to certain grammatical forms such as nouns and verbs. The only restriction is that the method used be mechanical and objective. The test is scored simply by counting the number of blanks correctly filled in.

In several respects, this technique is not unlike other techniques which have been in use for some time. One of the earliest attempts to construct an intelligence test was the "Ebbinghaus Completion Test" devised in 1897, in which a person's ability to fill in blanks in sentences was used as the criterion of intelligence. Teachers have long used incomplete sentences (for example, "France is on the continent of

.................") to measure classroom achievement. Vocabulary context tests are commonly used to measure the ability to predict the meaning of an unknown word from a grasp of its contextual clues. The cloze procedure, however, should not be confused with these or similar techniques.

In sentence completion tests the words omitted are apt to be restricted to the ends of sentences and unrelated to other sentences. Furthermore, the words to be omitted are determined by the test constructor in terms of their specific meanings and the purpose of the test. In contrast, cloze units may occur at any point in a continuous message, are chosen mechanically, and are interrelated so that success or failure in predicting one word may influence subsequent success or failure in predicting other words.

Unlike vocabular context tests in which the focus is upon the person's ability to guess the meaning of a word located in a sentence by using contextual clues immediately surrounding the word, the contextual clues in a cloze test may be far removed from a particular cloze unit. In addition, the cloze test presents no word structure clues, as does the vocabulary context.

VALIDITY

The Measurement of Readability

The measurement of the structural difficulty of a message is of considerable importance both to the practitioner and the researcher in the field of reading. Several formulae have been devised to measure readibility. Perhaps the most commonly used techniques are the Flesch and Dale-Chall formulas. Both techniques are characterized by the counting of elements in a message. The Flesch technique counts syllables per word and the number of words in a sentence, and the Dale-Chall device counts the words per sentence and the number of words not found on a list of commonly used words. Both approaches are based upon the simple notion that messages with polysyllabic or unusual words and long sentences are more difficult to read than articles with short or common words arranged in short sentences. Both readability formulae can be fooled if a message contains short words which are highly abstract or unusual and/or short sentences written in a highly atypical style. In addition, neither formula is able to measure the reading difficulty of a message relative to a particular group of readers with particular backgrounds of experience or interests.

Although only a few studies have utilized the cloze procedure as a measure of readability it appears to be a valid measure which is not subject to the previously mentioned limitations of the Flesch and Dale-Chall formulae. It is based upon the assumption that the interaction of all semantical, grammatical, and stylistic characteristics of a message will effect the degree of redundancy (that is, the predictability) of a message. A highly redundant article should be easy to read because it contains many common words arranged in commonly used patterns or cliches so that the reader is, in large degree, aware of "what is coming next" at any point in the article. A cloze test may be considered as a sample of message redundancy, because it samples the reader's ability to predict "what word comes next" at randomly chosen points in the article. That it is a good measure of message redundancy is indicated by the correlation of —.87 which Taylor[10] obtained between cloze scores and a measure of "information" in a sample of continuous prose.

When both the Flesch and Dale-Chall readability formulae and the cloze procedure were applied to samples from the writings of James Boswell, Julian Huxley, and Henry James, Taylor[8] found the readability of the three passages to be rank ordered similarly by each technique. However, the superiority of the cloze procedure was demonstrated when articles were selected which could be reasonably evaluated by the cloze procedure and not by the readability formulae. Such materials consisted of an obviously difficult passage by Gertrude Stein with short common words and short sentences (rated easy by both formulae) and a difficult passage by James Joyce with short words and sentences but containing words not found in dictionaries (rated easy by the Flesch formula). Both of these passages were ranked as the most difficult by the cloze procedure. Within the limitations of this study based upon small samples of both materials and subjects, the cloze procedure appears to be a highly valid measure of readability. Other studies have indicated that it can also be applied to the measurement of readability of the Korean and Japanese languages.[7,11]

The Measurement of Intelligence

When cloze tests are constructed by deleting words without consideration of the type of word being deleted (hereafter to be referred to as the "any word" deletion system), a definite relationship is found between cloze test results and intelligence tests. Taylor[9] obtained correlations of approximately .73 between a cloze test based upon a technical article on the Air Force supply system and the Air Forces Qualification Test. Sub-test correlations ranged from .82 to .85 for Wordknowledge and from .70 to .76 for Arithmetical reasoning. In a study using high school students and literary type materials, Jenkinson[2] obtained a correlation of .69 between cloze scores and intelligence quotients. These obtained correlations compare favorably with the correlation between standardized reading tests and intelligence test results.

It should be noted that these results were obtained only when all types of words were deleted. Taylor[9] obtained lower correlations (.46-.59) with intelligence when he deleted only nouns, verbs, and adverbs, all of which were found to be the most difficult words to guess. The guessing of these difficult words, however, proved to be more closely related to knowledge of the content of the article than did the prediction of words without restriction as to type. This is important for it suggests the possibility of reducing the influence of intelligence upon the measurement of comprehension through the selection of types of words to be deleted.

The Measurement of Pre-reading Knowledge

To measure pre-reading knowledge of the content of an article, cloze tests may be administered prior to subjects reading the article upon which the cloze test is based. The validity criterion in such studies is a second test based upon the content of the same article as the cloze test. Using an "any word" deletion system, Taylor[9] obtained a correlation of .70 between a cloze test based on the Air Force technical material and an objective test of the material. However, when he constructed a test deleting only nouns, verbs and adverbs, his correlation was increased to .92. Rankin,[3] using a noun-verb deletion system, found a correlation of .59 between a cloze test based upon "science" material and an objective test covering the same article as the cloze test. Due to low test readability, this .59 correlation is an underestimation of the test's validity. When corrected for attenuation the "real" correlation was .86.[1]

It is quite possible for a test to be valid for a total group even though its validity may vary as a function of sub-group characteristics. A number of studies carried out by Smith and his colleagues at the University of Michigan[5,6] have pointed to a relationship between personality factors and reading comprehension. Smith et. al. found the personality dimension "permeability", as measured by the *SA-S Senior Scales*, to be related both to degree of comprehension and to improvement in comprehension. Permeable individuals tend to be relatively flexible, disorganized, and extroverted, whereas impermeable personalities are relatively rigid, organized, and introverted. Rankin[3,4] hypothesized that individuals with above average level of permeability would display less consistency of test responses than impermeable individuals, both within a given test and between different tests. Thus, both test reliability and validity would vary as a function of permeability. These hypotheses were confirmed for the pre-reading cloze test. As a measure of pre-reading knowledge, the test proved to be relatively unreliable (split-half reliability coefficient =.57) for permeable subjects and more reliable (split-half reliability coefficient =.73) for impermeable subjects. Also, the validity coefficient (uncorrected for attenuation) was only .38 for permeable subjects as compared to .71 for impermeable subjects ($p<.002$ for the difference between coefficients).

It is interesting to note that when the cloze test was administered after reading the article upon which it was based, no differences in reliability and validity were found between permeable and impermeable personalities. This finding may be interpreted in terms of the need of permeable readers for structure in predicting the missing words in a cloze test. Permeable people are characterized by a relative lack of ability to organize ideas as compared to the less imaginative but more organized impermeable individuals. Before reading an article upon which a cloze test is based, the structure of the remaining context of a pre-reading cloze test is much less clear to the reader than it is after reading the article. Thus, the relatively disorganized person is at a disadvantage on the pre-reading cloze test and the highly organized person is able to capitalize on his major asset. After reading the article, the structure of the remaining context is not so nebulous, and the difference between validity coefficients for the two types of personality disappears.

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[1] Due to the low test reliability of the "noun-verb" delition test forms used in Rankin's study, all obtained correlations are serious underestimations of relationships. Therefore, all subsequent references to these results will be given as attentuated correlations unless otherwise indicated.

Validity coefficients for total groups on pre-reading cloze tests are reasonably high. However, the pre-reading cloze test is not recommended for the study of individuals unless their level of permeability has been ascertained.

The Measurement of Reading Comprehension

The validity of cloze tests to measure reading comprehension will be considered from the standpoint of general and specific comprehension, the comprehension of facts versus relationships, and comprehension as process versus product.

GENERAL VERSUS SPECIFIC COMPREHENSION.—The cloze procedure can be used to construct tests for the purpose of measuring either general reading comprehension as measured by standardized reading tests or the specific comprehension of a particular article.

Two studies have been carried out on the measurement of general reading comprehension. Jenkinson[2] correlated cloze scores with results of the "vocabulary" and "level of comprehension" sub-tests of the *Cooperative English Test, C-2,* and obtained correlations of .78 and .73, respectively. Rankin[8], using the *Diagnostic Reading Test, Survey Section* as a criterion of general reading skill, obtained the following correlations (uncorrected for attenuation) with cloze scores: Story Comprehension .29, Vocabulary .68, and Paragraph Comprehension .60. All of the previously mentioned results, based upon the "any word" deletion system, show a substantial relationship between cloze test scores and results of standardized reading tests.

Even so, the cloze procedure produces tests which tend to measure specific comprehension of an article better than general comprehension. The highest correlation in Jenkinson's[3] study was .82 between cloze test results and objective questions based upon the same material as were the cloze tests. Rankin,[8] using a noun-verb deletion system obtained correlations ranging from .45 to .65 between the cloze test and the *Diagnostic Reading Test, Survey Section* sub-tests, but found a significantly stronger relationship (r=.78) between the cloze test and an objective test covering the same article.

COMPREHENSION OF FACTS VERSUS RELATIONSHIPS.—The type of comprehension measured by a cloze test is a function of the type of words selected for deletion. For example, if a statement reads, "The .... was given the book," the structure of the sentence is quite clear even in the absence of the noun "professor." This being the case, filling in the correct word should reflect, primarily, the respondent's knowledge of the name of the agent receiving the book. On the other hand, if the statement read, "The professor .... given the book," the absence of the word "was" would remove the necessary clue for the respondent's knowledge of the structural relation between "professor" and "book" (since the insertion of "has" would change the relationship. In this latter case, guessing the correct word should reveal, primarily, the respondent's grasp of relations between words or ideas in the sentence. These examples illustrate two aspects of meaning which may be "tapped" by a cloze test. The first type of meaning refers to the meaning of individual words as they might be defined in a dictionary. Fries[1] calls this "lexical meaning" and differentiates it from "structural meaning" which is signaled by a system of morphological and syntactical clues apart from words as vocabulary units. Although time does not permit a thorough consideration of this point, it can be shown that if one deletes nouns and verbs from a sentence, he will reduce the total amount of lexical meaning in the sentence more than the total amount of structural meaning. Therefore, a cloze test from which only nouns and verbs have been deleted should measure, primarily, "lexical comprehension" (that is, the comprehension of substantive content or relatively independent ideas). Structural meaning, according to Fries, is signaled by (1) individual "function words" which include such words as verb auxiliaries, articles, prepositions, conjunctions, possessive and relative pronouns, etc.; (2) syntactical or word order clues; and (3) morphological clues such as verbal inflections. Since a random (or "every nth" word deletion) should sample all of these clues to structural meaning and still leave many nouns and verbs, which occur in great abundance, in the remaining context to signal lexical meaning, an "any word" deletion form should reduce the total amount of structural meaning more than the total amount of lexical meaning. Therefore, a cloze test so constructed should measure, primarily, structural comprehension (that is, the comprehension of interrelationships between ideas).

To test the hypotheses, that a "noun-verb" form of the cloze test will measure lexical better than structural comprehensions and that an "any word" test will measure "structural" better than "lexical" comprehension, Rankin[8] used the Story Comprehension sub-test of the *Diagnostic Reading Test, Survey Section* as the criterion of "lexical comprehension" because the test questions are primarily factual. He used the Vocabulary and Paragraph Comprehension sub-tests as criteria of "structural comprehension" because the Vocabulary test measures ability to grasp abstract symbols embedded within a verbal context and the Paragraph Comprehension questions consist of such items as identifying the main idea, drawing inferences, etc. Results confirmed the hypotheses. The noun-verb test correlated .57 with Story Comprehension as contrasted with .42 and .39 with the Vocabulary and Paragraph Comprehension sub-tests ($p<.05$ for both comparisons). The "any word" test correlated .38 with Story Comprehension as compared with .80 and .73 for the other two sub-tests ($p<.05$ for both comparisons). It should be remembered, that the "any word" form also correlated highly with intelligence. It may be inferred that intelligence is more closely related to structural comprehension than it is to lexical comprehension. Both of these two components of meaning are closely interrelated, and yet the cloze procedure may be used to emphasize the measurement of one or the other aspect of total meaning, depending upon the purposes of the test constructor.

COMPREHENSION AS PRODUCT VERSUS PROCESS.—The usual method of measuring reading comprehension is to measure the end product of the reading process by asking questions concerning the material after the reader has completed reading a passage. A cloze test may be used to measure comprehension as product by administering the cloze test based on a total passage (or some portion thereof) immediately after the reader has completed the passage. Taylor[9] reports a correlation of .80 between cloze test results and an immediate recall test, and, as was previously reported, Rankin[8] found a correlation of .78 in a similar comparison. Apparently cloze tests are valid measures of comprehension defined as post-reading comprehension.

Perhaps the greatest potential of this technique lies in its use for measuring reading comprehension as an on-going process. If two people make the same score on a test administered after reading an article, and one person knew more about the subject to begin with; the amount of learning is quite unequal between the two readers. If one wants to measure the amount learned through reading a passage, it is relatively easy to construct two cloze tests based upon samples of an article and to administer one test before and the other after reading the passage. Both Taylor[9] and Rankin[8] have obtained "gain" scores between pre- and post-reading cloze tests significant at the .001 level. Such measures do not confuse "post-reading knowledge" with reading as a learning process. Learning-gain scores serve to reduce the advantage held by individuals with an initially high level of information but who may or may not be superior readers. Unfortunately, the influence of personality upon the pre-cloze test performance limits the usefulness of this comparison. Also it is important to remember that unless the effects of regression upon gain scores is measured, the gain score may be the largest for those individuals with the lowest initial scores.

Another use of the cloze procedure to study reading as a process was made by Jenkinson[2] who selected high school students for individual interviews who had previously made very high and very low cloze test scores. During the interview, each subject took another cloze test and, while taking the test, verbalized his reasons for the insertion of words. The introspective and retrospective verbalization of these two groups were analyzed. The high scoring students demonstrated significantly greater superiority in such characteristics as recognizing syntactical clues, sensitivity to style, fusion of separate meanings into ideas, recognition of implied meanings, verbal flexibility, knowledge of word meanings and language structure. It is doubtful that the "catichistic method" (to use Jenkin's apt phrase) which equates "comprehension" with the ability to answer questions after reading could yield such insightful findings of the underlying factors involved in the process of reading.

UTILITY

The striking utility of the cloze procedure lies in the ease with which it can be used in test construction. This fact can best be appreciated if one compares the time and effort expended in writing a set of objective questions which have suitable reliability with the corresponding time and effort involved in simply deleting, say every 5th word in an article or some portion of the article. The need for careful selection of questions for an objective test and the problems involved in writing these questions demand considerable skill and training, whereas, different cloze tests can be easily constructed in quantity by clerical personnel.

Even though responses to cloze tests are written-in by persons taking them, they can be easily scored with a hand scoring key. Such scoring is very simple because it is strictly objective. The exact word that was deleted must be filled in. Taylor[6] has shown that the more laborious procedure of giving credit for synonyms does not yield a more discriminating measure of readability, and Rankin[3] found that test reliability and validity was not improved by synonym scoring.

Another feature of this technique which contributes to its general utility is that it can be used to construct equivalent test forms drawn from the same or similar materials. It is possible to construct multiple test forms with similar means and variances and high intercorrelations[3].

An apparent limitation upon the usefulness of this device is the influence of personality factors upon test performance. As was previously mentioned, reliability and validity of cloze tests administered before reading an article are low for individuals with above average permeability. Also, the writer found that subjects with above average anxiety performed more poorly than other subjects on one out of four equivalent test forms[3]. If it turns out that cloze test results are peculiarly susceptible to influence by extraneous personality factors, this would certainly limit the usefulness of the technique. However, not a great deal is known about the interrelationships between personality factors and test performance on other types of tests. Subsequent research may indicate that test reliability and validity vary, in general, as a function of certain personality dimensions.

From the standpoint of the classroom teacher, the cloze procedure has many potential uses. The teacher could readily determine the readability of textbook material relative to the type of students in a given class. Both general comprehension skills and specific comprehension relative to particular subject matter material could be determined. Discrepancies between these two types of comprehension might provide suggestions for individualizing teaching techniques. The use of the pre-reading test as a test of information about a given subject could be used to assess readiness for the class as a whole, but not individual differences in readiness.

The remedial reading specialist will find many uses for this technique. The use of introspective reports combined with the cloze test (as used by Jenkinson[2]) appears to have considerable diagnostic value. By varying the type of words to be deleted, the reduction of the influence of intelligence upon reading test results might permit the evaluation of improvement over time which is masked by the relative constancy of intelligence. The use of several test forms from the same article should permit a more continuous assessment of progress for the class as a whole than can be attained through the usual before-after comparison. It seems quite likely that "cloze exercises" might be of value in improving the use of context clues or vocabulary.

For the researcher, this technique will permit the study of some of the underlying process involved in reading. The use of "pre-post reading" gain scores may permit the study of reading as a learning process rather than a final product. The study of the interrelationships between "lexical" and "structural" comprehension might prove to be of practical as well as theoretical value.

Although the cloze procedure appears to be a valid and useful measure of readibility, intelligence, knowledge, and reading comprehension, only a few studies have been carried out to assess the validity and usefulness of the technique under varying conditions. Many problems need to be investigated such as its applicability to different types of materials and at various age levels and the size of the word deletion sample necessary to measure the readability or comprehension of a total article. It is only through a combination of theory building, research, and practical usage that the potentalities of the cloze procedure can be fully realized.

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The Value of Discussion in the Reading Group

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The atmosphere generated in certain reading programs is tense and fraught with pressure. In such programs the tenseness and anxiety of students usually is intensified by the methods employed by the instructor. An excess number of speed exercises, attention-demanding machines, pacing devices which force the student to follow prescribed standards, and numerous tests often serve to increase anxieties and sometimes even frustrate students. Often such pressure is deliberately generated by the reading instructor in the belief that greater motivation and learning is attained. It is likely, however, that many of the failures which result in the conventional reading program result from this situation.

Many writers have pointed out that reading disabilities are often accompanied by more or less severe personality difficulties. Considerable space has been devoted to discussion of the relationship of reading to personality. Although a complete discussion of the relationship is outside the realm of this paper, it should be pointed out that many college students who enter reading programs do have social-emotional problems. Many students see themselves as inadequate, others have difficulty in communication, and some will have hostilities and anxieties which prevent optimal self-other relationships. Counseling and individual conferences have been urged as concomitants to reading instruction in order to assist such students. Group discussion also can assist by providing an atmosphere which promotes a feeling of security and belonging.

At the beginning of the reading program, discussion serves several purposes. First it serves to orient the student to the program and to familiarize him with the tasks he faces and their purposes. The objective is to have him express his own feelings about his needs in the hope that he will set his own goals. A second purpose of discussion at this point is to help the student recognize that his problems are not unique but are shared by other members of the group. As many students lack security it is likely that they receive consolation from this realization. It also is likely that identification with the group will be facilitated. Identification with the group, and recognition that one is free to express one's feelings in a permissive atmosphere, probably will result in an alleviation of tensions and anxieties. Throughout the reading program discussion is continually employed for this purpose.

Although the time spent on discussion can be justified from the psychological viewpoint described above, it also can be justified from a pure learning viewpoint as well. Many students enrolled in the reading program have difficulty in verbalizing their feelings and ideas. In many cases, failure to comprehend abstract passages stems from difficulty in associating ideas and verbalizing them. Whether the difficulty is due to intellectual factors, personality, or faulty habits; discussion techniques may facilitate the development of this skill.

If time and facilities for counseling are limited, group discussion techniques are of even greater importance. Time spent in discussion actually will help the reading specialist to achieve the desired outcomes.

Helping the Able Reader Is Not "Teaching Reading"

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The Reason for Reading Training

A current trend in industrial psychology plus the ever-increasing flood of printed material has had a marked influence on the teaching of reading. The trend in question is the emphasis on the development of executive talent and it has resulted in a rash of courses, institutes, seminars, and conferences all designed to increase the effectiveness of management personnel in industry. It is inevitable that this emphasis should turn to the improvement of a skill which is basic to much of a supervisor's success on the job—reading. Reporting at this conference last year, Dale Bryant[1] affirmed this. He found that of 165 replies to a questionnaire, 40% either had or planned some kind of reading training for their personnel; and that 32% of the total were interested. This indicates that 72% of his sample either had a program, planned one, or were interested in offering one.

The marriage of executive development and reading training is inevitable from proximity alone, if not from natural affinity. At present the union is a fairly happy one. It is to be hoped that the offspring of the union will be reading skill for business and professional men and women which is more nearly in line with their capabilities than appears to be the case now. And another result of this happy union could very well be, for us who work in reading, a better understanding of how the able thinker really reads. I for one would very much like to know why he has to be trained to read with dispatch and why he doesn't do this as naturally as he breathes. Also how he derives meaning? What techniques are most useful to him here? And how good his judgments really are when there is evidence that all too often the fabric of his general vocabulary has glaring holes in it?

But suffice it to say that business, industry and even the professions are at present hot in pursuit of improved reading and it is the process of improvement that is our immediate concern. How should we conduct this training? And why should we do it that way? I make bold to offer the following as one "trainer's" answer to these questions and invite you other "trainers" to contribute your answers so that we may, by pooling our ideas, better fulfill the need. In our program we have developed a four-to-six session course based on emphasis and have not found much difference in the results between that short a period and our previous 10 to 14 session courses. In each case the improvement in rate varies from about 90 to 130 per cent without loss in comprehension. A report of one of these programs is available[4].

The Method and the Rationale

The hypothesis from which I believe reading training for industry should operate is that greater effectiveness in reading is primarily the result of a change of attitude toward reading. A corrollary of this hypothesis is that although attitude may be a function of the psychology of the reader, it is also a learned response. Now learning, as we know, can be achieved by extinguishing undesirable responses by rewarding new, more effective ones. The method by which we would improve the executive's reading is to convince him that reading is a thinking process mediated by the use of words. To read he must think. To read well he must think clearly. In order to read well he needs the same tools he uses whenever he thinks, namely, words, language skills, reasoning. (Though I am aware we have reason to believe that thinking may occur without the use of words, for practical purposes and in a majority of instances, we think in words.)

Now most of the readers in this group, i.e., the industrial, business and professional, have the use of all these skills to a high degree. Adults who have achieved a more or less high level of professional or business success have had to use judgment, intelligence, and good reasoning ability. They have usually demonstrated more rather than less efficiency on the job from which fact we may reasonably infer the preceding three characteristics.

The next step, therefore, seems obvious. Since the reader has the skills necessary, all he needs is to be shown how to put these skills to use in a process that he has been misunderstanding for most of his years. He does not really need to be shown how to read. He needs only to be convinced that he has not been treating reading as the reasoning which it is. When he understands what he's really doing, he will, ergo, convert his efforts into more appropriate channels. It's as simple (?) as that!

And so we center our attention on changing his attitude. But this alone will not make him an effective reader. The new attitude must be set to work. To implement an effective change he must extinguish the undesirable responses and replace them with new, desirable ones. This is the second phase of the training, reinforcing the changed attitude by introducing him to techniques which will be rewarding. Now may I be somewhat detailed and specific.

Characteristics of the Ineffective, Though Able, Adult Reader

When one of this group of readers comes in for training, we find he usually has three characteristics which set him apart from his more effective peers. One, he has often a meticulous, word-by-word approach to reading; two, he is overly cautious and, three, he has undue reverence for the printed word.

The first of these, word-by-word approach, that most primitive form of reading since it often amounts to mere name-calling in its most virulent form, keeps him from reading any faster than he would if he were reading aloud. He doesn't seem to realize this and his usual answer when faced with the inefficiency is, "But I can't *see* more than one word at a time!" Of course, we know how we handle that one! The same way you do!

The overly cautious attitude acts to keep him tied to mere plodding through the endless desert of words which is his lot. He fears to slight any one particle of print lest he "miss something." He "feels guilty if he doesn't heed each word in turn." He "thinks it's unfair to the author" not to hang on every word. And so he not only reads every word but he also regresses to be doubly sure he hasn't made any mistakes in comprehension. If he's as honest as one of my former students, he eventualy admits, "I read so slow I bore myself!" Usually, by that time he is ready to do something about his problem.

His third characteristic, undue reverence, must be another of those hang-overs from some authoritarian influence in his past. Professionals working with the problem of how to derive meaning from the printed page know that just because a man is in print doesn't mean he has something to say. But engineers, doctors, lawyers, business executives seem to be unaware of this. At least they read as though they are. They hang on each word, each sentence, each paragraph of *all* they read as though it were filled with a profundity which can be understood only by the most careful and laborious thinking. The reason for this is not hard to find. Many of such readers have spent much of their college study and almost all of their adult working life in pursuit of detail. Their reading has been in science, math, law books, medical texts and its purpose has been to gain more and more specific and detailed information.

Parenthetically, allow me to assert at this point, that this approach even in the learning days was probably unduly meticulous. Actually many medical and law students are inefficient in their emphasis on verbose, some articles are written for so wide a public that authors use repitition and example ad nauseum. In failing to be aware of these conditions the reader approaches all reading with reverent attention. The method is so discouraging in its results that they can in self-defense read only what is barely essential for success on the job.

As a matter of fact I am convinced from my experience with these readers, that only when they have advanced in their fields of work to the point where their need for general reading is forced upon them, when, that is, it is no longer a matter of choice, only then do they at last become aware of the ineffectiveness of the atomistic approach. Promoted to more advanced supervisory positions where peripheral reading is mandatory, they can no longer avoid it. But all their previous learning defeats them. The word-by-word approach, the overly cautious attitude of "let's not miss a thing," the undue reverence for all printed matter just because it *is* printed—all of these spell defeat to the man in the advanced management group. And so he calls for help.

The Techniques That Aid Change of Attitude

The first step toward improving reading for this group is, as I have said, a change of attitude. This presents no problem in 49 out of 50 cases. A single two-hour demonstration is usually sufficient. Often no convincing is necessary. Some readers have realized it before they come for training but have been unable to effect the change on their own. The one in 50 who is too insecure, or fearful, or compulsive to permit himself this break with habit requires more intensive instructions and often a revised approach because he must be reoriented in more than just his approach to reading.

It is in substituting the new responses for old that training is necessary. The method as we use it consists of three parts. These are not necessarily independent nor can they be taught in isolation, but as I surveyed the sum total of the techniques, it seemed to me they cluster around three main areas, the first of which is purpose. Look at any good reading improvement workbook, Gilbert's *Power and Speed in Reading*[2], Glock's *Improvement of College Reading*[3], Spache's *The Art of Efficient Reading*[7], to name only three, and you will find this approach always up near the front in the improvement program. It is not new. (In fact nothing about this training is new except the emphasis.) To this type of reader, however, it *is* new. He has too often not given his purpose a thought, with the result that he arrives at the end of his reading too late with too little. He hasn't known, consciously, *why* he is reading, hence *what* he is reading registers only through his own interests and prejudices or through the writer's ingenuity and cleverness of presentation. He must be taught to orient to his reading whether it's a policy letter, a trade journal like *Printer's Ink* or a text in human relations like one of Peter Drucker's.

He then has a target to shoot at, a goal to reach and he is far more apt to use the necessary language and reading skills and come up with good comprehension. Any variations of the SQ3R method will serve. Here again almost any sound manual of study habits will offer suggestions, Morgan's *How To Study*, for example[6]. I like to say "Orient, Survey, Question." To do this, the reader is forced to attend, hence he begins to be aware that it was often inattention that caused his poor comprehension, not complexity of thought in the material. He attends, he then surveys. At this point he may need to be shown several things. He may not know how to skim, which, of course, he must do to survey. He may have ignored the organizational pattern of the writing. He may not be aware of the helpfulness of transitional words.

Frequently he has done considerable writing himself, sometimes for publication, and needs only to have it demonstrated to him that the language skills of paragraphing, punctuation, coherence, et cetera are all signposts for deriving meaning. Adequate skimming skill, the use of typographical aids plus the language skills are the important tools used by purposeful readers.

The second area of emphasis is to develop a positive approach to reading. Too many of these slow, able readers are too passive, even negative in reading. Some are not very verbal themselves and mistrust verbosity in others. The need here is to learn to read for ideas. A single sentence with all the key words deleted easily demonstrates the point. Triggs[8] used this devise years ago in *Improve Your Reading*. Follow this with training in selecting key words in sentences, then in paragraphs. Then train for key ideas in the complete article. Here again he needs the ability to skim, to recognize the author's organization by letting the transitional words tip him off to meaning. If the reader has some of these devices at his command—and he usually has whether he uses them or not—he very soon becomes more positive and aggressive. Fortunately for the reading coach, these readers are highly motivated and they have ready at hand plenty of practice material. One or two successful experiences with attention to pre-selected ideas, pre-selected by themselves that is, and the race is won.

They have demonstrated to themselves that it *can* be done; they have long since felt the need for doing it; the combination is excellent reward for the new response. Learning results.

As you who work in reading are aware, the purposeful, positive reader must also be a flexible reader and flexibility is the third area of emphasis. This is a somewhat skewed emphasis for industrial readers when the training is confined to as short a period as six weeks. But if the hypothesis underlying the approach is to be tested it is necessary that we emphasize only given required skills. In the case of flexibility this means the reader must be able to shift from meticulous, slow, detailed reading through the moderate and rapid rates to very rapid skimming. Usually he has some of this range. Occasionally he has only the very slow. And again we get one who has had to survey so much that he has only the very rapid. The trainer's task is to help him develop *all* the rates and to become adept at shifting. To quote McDonald[5]:

> "One of the most important characteristics of the good reader is flexibility. He changes his reading speed and approach to suit his purpose for reading. He varies his rate and method of reading to accomodate differences in style of writing, level of difficulty in content, and amount and quality of his background knowledge of the subject. This ability to change one's reading rate, to vary the thoroughness and fullness of comprehension achieved by reading, and

> to alter the character of one's reading approach, is the basis upon which depend the ability to read selectively and critically, to evaluate and judge what has been read."

It is fairly easy to teach when short selections are used and the shift needed is from selection to selection but this is a restricted use of the technique. These readers need to shift within selections. The supervisor reading an announcement of procedural changes needs to be able to read the introductory paragraph rapidly, read moderately for over-all recommendations and perhaps slow down to quite a slow rate when the procedure impinges upon his own operation. This is frequently a brand new idea to him. It is a difficult skill to teach.

It is even a difficult one to measure. Fortunately two people have concerned themselves with its measurement to the extent of developing tests. McDonald's Inventory[5] was reported at this conference last year, and is, I believe, about to be published. Dr. Spache has included his in the new workbook for use in industry. These measures are a definite aid in diagnosis and evaluation. Their use will help to call attention to the development of the skill.

To develop this skill the reader does best by reading long selections under pressure. If he does this enough so that he unconsciously uses a positive, purposeful approach, he must of necessity develop flexibility. Analysis of material read with a discussion of how it would best be done is helpful in encouraging shifting of speed. This skill, like the improvement in eye movements, is probably only successfully achieved by emphasizing the central processes in reading rather than the peripheral ones.

Summary

The approach I am suggesting for those who work with industrial, business and professional readers is that of changing the attitude from a halting, insecure approach with tendencies to treat isolated words as sources of meaning to a confident, aggressive attack on written material as a medium through which the writer is presenting ideas to the reader. To understand the ideas the reader must orient to the material and must be aware of his purpose, of the organization, the writer's thinking. He must use good mechanics, make the most of his language skills and shift speed to suit purpose. In brief, he is helped to change from a cautious, passive in-flexible reader of words to a purposeful, aggressive, flexible reader of ideas. It is the task of the coach to aid him in this metamorphosis.

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Effective Use of Textbooks in the Reading Program

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A study of the literature dealing with the improvement of reading at the college level shows two major approaches to the problem. A few institutions of higher learning are concerned with a clinical attack upon the problem. An attempt is made to isolate, in individual cases, the casual factors and then eliminate or alleviate the primary, secondary, or predisposing conditions held responsible for the difficulty. Such disciplines as psychology, physiology, medicine, and education are drawn upon to make their contribution. A second major approach which is employed by a greater number of colleges and universities is developmental in nature. There are three manifestations of this point of view found in the literature. In using this approach, some instructors set up certain reading skills as their major objectives and then provide opportunities for drill. These skills, although having intrinsic values, are frequently not appreciated by the student as being essential to his immediate purpose. For example, he is given words to add to his vocabulary and selections to be read, and in many instances the importance of reading rate is stressed. The responsibility of the teacher is reduced and his work is facilitated. This may account for the popularity of this *skill drill* type of program. Other instructors, in using a developmental program, may resort almost entirely to the use of mechanized equipment. Attempts are made to develop adequate visual skills. An emphasis is placed upon shorter periods of fixation, longer spans of recognition, and the reduction of the number of regressive eye movements. This approach, like all others, has its advantages and limitations. Still another form of the developmental approach to the improvement of reading achievement is the work-study technique. The student is shown how to improve his reading skills as he does his regular academic work. He is taught how to think and to use his textbooks effectively, how to read in various subject matter fields, how to read critically and for problem solving. These skills, as Carter[1] has pointed out, are both contributing and concomitant aspects of reading in the learning process. In using this approach, the mature student can see for himself the relationship between his ability to read and success in his academic field. Like all approaches to the problem of reading improvement, this technique also has its advantages and disadvantages.

It becomes obvious to the teacher of reading at the college level that all these approaches and points of view are merely tools which should be selected to accomplish specific goals and always in consideration of the immediate needs of the student.

Reading Needs of College Students

In a study now in progress at Western Michigan University, 61 per cent of 1,029 students completing their freshman year in college reported that their high school teachers had provided no opportunity to improve their reading skills. 68 per cent reported that they had never been taught how to read a chapter effectively, and 70 per cent indicated that they had not been taught to concentrate upon a reading activity. 64 per cent had not been shown how to develop an awareness of problems, and 70 per cent had not been taught how to critically evaluate a writer's bias and use of preconceived ideas. In summarizing their reading needs, 82 per cent of these 1,029 students pointed out that a high school course in the improvement of reading would have been beneficial to them. The teacher of developmental reading at the college level can determine more directly the reading needs of his students by means of standardized tests, informal inventories, observations, and by a study of the student's academic history. All of these means are important and in some cases their use is essential to an understanding of the individual. Their application, however, is time-consuming and many instructors become lost in a mass of resulting detail. In view of existing conditions, is it not reasonable to ask what are the reading needs of college students in general? What is the consensus of investigators in the field?

After eight years of careful study of the reading skills essential to successful college adjustment, the reading staff of De Paul University and the University Testing Service[8] have concluded that "reading skills required for academic success in college should be operationally defined as thinking skills rather than as comprehension." These investigators point out that to read adequately in college the student must share with the author in his experience of generalizing affirmatively, negatively, adversatively, hypothetically, and consequentially. Halfter and Douglass point out that "the controlled and experimental reading improvement programs, over an eight-year period, that have correlated significantly with college semester grade averages are not those with emphases on speed training, visual span incrase, phonics, or even vocabulary, but those with formats directed to acquaintance with the major discernible patterns of organizing and developing thinking in each field of concentration." Briefly summarized, these investigators recommend that college students be taught to think and to make effective use of the textbooks in the various subject matter fields. Pauk[6] of Cornell University in a recent article substantiates this point of view when he concludes his discussion of skills needed in college reading by saying, "We must teach basic reading skills in terms of the student's subjects."

Program at Western Michigan University

In the fall of 1944 the staff of the Psycho-Educational Clinic established a reading laboratory for college students who were failing to make satisfactory academic progress. In the early stages of this work the emphasis was chiefly clinical in nature. As the number of students increased, a developmental approach to the problem became mandatory. Students asked, "How can we improve our reading as we do our regular class work?" "Can you show us how to read more effectively our college textbooks and library references?" Many of these students asking for help had percentiles in reading on the Ohio State Psychological Examination ranging from 60-90. In attempting to meet this need of a thorough-going instructional program in reading, consideration was given to aims, materials, and procedures.

Aims

In changing from a clinical to a developmental approach, it was assumed that reading instruction should be related to actual classroom situations so that the student would have an opportunity to apply instructional suggestions as he does his daily preparation. In brief, the student should be taught to *identify* ideas, to *interpret* ideas, and to *evaluate* ideas. Any intelligent student can identify facts and concepts, for this skill has been emphasized throughout his early training. Interpretation, the second higher skill, is more dependent upon the reader's background and experience, for in order to interpret and understand, mental content resulting from experience and background is essential. This level is difficult to attain. The third level is even more difficult for it is not only necessary for one to identify facts and to understand facts but also to possess the judgment based upon mental content which will permit the acceptance or rejection of facts. The student must not only possess a skill but he must know when and how to apply it. Some specific objectives, set forth by the staff of the Psycho-Educational Clinic, are:

1. To improve the student's ability to use the different parts of his books and to see the manner in which materials are organized
2. To develop skill in reading a chapter effectively and well, using both textbook and non-textbook material
3. To develop skill in associating facts obtained from a textbook with facts already known
4. To learn how to concentrate upon a reading activity
5. To develop skills in the use of the dictionary
6. To increase reading vocabulary and to develop skill in word recognition by making use of contextual clues
7. To develop skill in interpreting a short poem by utilizing choice of words, diction, organization, form, and tone
8. To develop skill in reading the newspaper effectively so as to make use of "leads," "catch all," and main body of story
9. To develop ability and skill in problem solving, especially in such areas as mathematics, chemistry, or physics
10. To develop skill in the use of the card catalogue and the *Reader's Guide* so that source materials for reference reading and term paper may be located
11. To develop skill in applying what is read to the solution of one's personal problems

12. To develop skill in adjusting rate of reading to the purpose and nature of materials
13. To develop skill in speaking and writing, listening and reading, all aspects of communication, and
14. To develop ability to do critical reading in several content fields

Materials

The primary source of materials used in the Reading Laboratory at Western Michigan University is the textbook of the student. Each individual makes use of one or more of his textbooks during a part of the class period or as he reads and prepares for his classes in the different subject matter fields. As a means of assisting him in this undertaking, he uses *Effective Reading for College Students.*[3] This book emphasizes the following basic principles of reading improvement at the adult level. The student must understand that he can improve his reading skills and that the responsibility for doing so rests with him. He should learn by means of standardized tests or, if necessary, from informal inventories how well he reads and after an appraisal of his reading requirements he should select for himself the specific skills he needs to achieve. Each individual should be given an opportunity to attain these skills at his own rate and in accordance with his own plan *while* he does his regular academic work. Instructional materials should be simple, direct, and specific and should be applied in meeting one's daily reading requirements. The student should understand how physical, psychological, and environmental factors may have lowered his reading performance and *how* these injurious factors may be modified. The student should evaluate his reading skills both at the beginning and at the end of the laboratory or training period. These criteria of a developmental reading program suggest not only what materials are presented but indicate how and in what order they are utilized. Furthermore, a part of each class period is spent in using the Controlled Reader and taking the tests based upon the filmstrips. In addition to these sources of materials, dictionaries and other references are made available to the student. Equivalent forms of the Iowa Silent Reading Tests are administered at the time of the initial and final evaluation of the student's reading performance.

Procedure

Students who enter the Reading Laboratory do so because of their own initiative or as the result of counseling. No one is compelled to enroll. Each section is limited to thirty-six students and meets for one hour two times each week. No credit is granted. A report, however, of each student's achievement is filed with the Director of the Counseling Bureau and with the registrar. During each class period time is spent for lecture, demonstration, and laboratory activities. At the first meeting, members of each group discuss *why* they should improve their reading, *how* successful others have been, and *what* they will be expected to do during the eighteen weeks of the semester. The use of *Effective Reading for College Students* is discussed and chapter one, Value of Effective Reading, is assigned. Students are expected to complete the Guided Activities at the end of the chapter. These activities are functional in nature. Specific selections to be used as exercises are rarely presented. Instead the student is given guidance in applying a new skill to any material he wishes to read. Thus, these Guided Activities are in keeping with the general policy of providing functional practice. During the next two meetings of the class, Form Am of the Iowa Silent Reading Test is administered and the activities centered around the Controlled Reader are explained. During the fourth meeting the results of the Iowa Silent Reading Test are summarized and the student is shown how to interpret his profile sheet. Class discussion is encouraged at this time. Chapter two in *Effective Reading for College Students* is introduced and the students are expected to complete the Guided Activities and to list the reading skills which they believe to be essential to their academic success. Their inferences are to be based upon their performance on the Iowa Silent Reading Test and the Informal Inventory found in their reading text. At the fifth meeting of the class the students are shown how to plan the task ahead. By this time the student has discovered how well he reads and the reading skills he does and does not possess. From class lectures and *Effective Reading for College Students* he has discovered some physical, psychological, and environmental factors which may have affected his reading performance. Logically, his first question is: What can I do about it? His reading text provides practical answers which have been emphasized in class lectures. During these instructions each individual has been treated as an adult and has been given an opportunity to apply the content of the course to his own work. Many utilize the various reading procedures in their class preparation of history and English, while others use their textbooks in biology and chemistry. In working with college students, it is not unusual to find reading ability ranging from the sixth grade to the thirteenth grade, inclusive. Adjustment of materials to the reading levels of the students is essential and frequently becomes a real problem for the instructor. No attempt, however, has been made, similar to that reported by Kruglak[4] at Minnesota, to read aloud to students and interpret their textbooks to them. Four to six class periods are spent in the development of such topics as chapter reading, vocabulary building, learning to concentrate, finding and organizing information, reading to solve problems, and critical reading. The student is given an opportunity to apply and practice what he learns both during the laboratory period and as he prepares for his college classes. It is possible for him to learn to read as he reads to learn. Lorge[5] has given support to this point of view when he states, "Reading in action for thinking and learning can be achieved by striving for independent and extensive utilization of the world's resources of print." In order to facilitate this application to the use of textbooks, conferences are held with groups of students having similar problems. In some cases individualized instruction is necessary and is provided by graduate students under the direction of the staff of the Psycho-Educational Clinic. At the end of the semester, Form Bm of the Iowa Silent Reading Test is administered. Changes between initial and final test scores are interpreted and discussed.

Evaluation of Program

Any attempt to evaluate the effectiveness of a reading program must take into consideration not only changes on initial and final test scores in reading but changes in academic achievement as well. This is especially true of any reading program attempting to teach students to use effectively their textbooks as a means of increasing scholarship as well as reading proficiency. In evaluating the reading program at Western Michigan University, McGinnis[7] found that students who enrolled in the Reading Laboratory not only made a marked and statistically significant gain in reading as measured by an objective test but also made statistically significant higher point hour ratios than an equivalent group of students who did not complete the work of the laboratory. In consideration of the facts presented in her study, it is reasonable to assume that the materials and procedures employed in the Reading Laboratory are of value in improving not only the reading ability of college students but their point hour ratios as well. This, in part, may be due to the nature of the materials presented for the content has been directed primarily to the accomplishment of academic attainment and not merely to an increase in certain specific reading skills. It is reasonable to assume that mechanical devices and techniques used to facilitate adequate eye movement are useful adjuncts to the development of reading and study skills but that they cannot be regarded as *sine qua non*. Motivation is a factor to be considered in the interpretation of data presented in this study for each student entered the laboratory voluntarily and not as a requirement. In interpreting data resulting from this evaluation consideration should be given to the possibility that some gain in achievement may be due to the fact that students in the Reading Laboratory have been singled out and given individual attention and that some students show gain in reading skill without any instruction or guidance.

Some Inferences Resulting From An Overview of the Problem

In this presentation, an attempt has been made to set forth a developmental approach to the teaching of reading at the college level which emphasizes the use of the student's textbooks as he does his academic work. This approach has been used at Western Michigan University since 1944 and at De Paul University since 1950. After one has applied with variations this attack upon the problem for fourteen years, some inferences can be made with a degree of impunity. Five postulates follow.

1. It is reasonable to assume that those interested in the improvement of reading skills at the college level would be primarily concerned with the application or transfer of these skills to successful academic achievement

2. It is becoming apparent that if this transfer is to take place, training in work-study or thinking skills must be directly applied in the respective content areas in which the student is working.

3. If this is done successfully, there must be full cooperation and understanding between the reading staff and the various schools, departments, and subject matter areas. In other words, work-study skills should not be taught in a vacuum.

4. The work-study approach should be made available to those students who have been regarded as good or even superior readers for many of these young people are able only to identify ideas. They experience difficulty in interpretation, evaluation, and application. They have not learned to think and use effectively their college textbooks.

5. The work-study approach to reading needs careful study, further development, and continued evaluation. In accomplishing this end, groups of individuals should cooperate and pool their findings.

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Clay Idols in the Reading Business

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Despite what some psychologists say, man is by nature afraid of the dark. Motivated by his overactive adrenals, he fills the night with enemies, with murderers, thieves, and little creatures from outer space. Even more frightening than the night is the immense void of his ignorance, the darkness under his intellectual bed.

One's only defense against the terrifying powers of darkness is a god, an all powerful being who can protect one from the evil out there. And, what if it is made only of clay; that is simply a representation of the true being, put together for purposes of worship.

Unfortunately, such idols are maintained long beyond their useful life—maintained to a point where they begin to dominate their makers. Their dicta prevent an open-minded investigation of the dark places. And when an occasional iconoclast shines his feeble light ahead, discerning the vague outlines of new knowledge, the high priests of the idol warn the faithful against the lies and half-truths of the sceptic. After all, anyone who would question the wisdom of the people's god must be an enemy of the people. As a result, the people's appraisal of new knowledge is distorted by their own half-closed minds.

The purpose of this paper is to expose what appear to me to be clay idols, the existence of which acts as a powerful deterrant to the progress of our profession.

Diagnosis

The first of these concerns diagnosis of reading problems. A diagnosis usually begins with the determination of symptoms. A reading diagnosis begins with an evaluation of the present status of a client, that is, his symptoms: what is his rate of reading? his comprehension? his recognition vocabulary? his word attack skill? The next diagnostic step is to account for the symptoms. What causes his slow rate, inadequate comprehension, etc? Most "reading diagnoses" consist only of the first step—an appraisal of status. Seldom does the clinician take the next step, determination of the cause.

When he does, he most often thinks of causation in an historical sense. *E.g.*, "He probably received poor teaching," or "His parents are probably at fault: too much pressure." Such a view of causation would be acceptable if removal of the cause cured the symptoms. Neither removal of the teacher nor the parent is likely to cure the symptoms. But to put the point another way, diagnosis does not mean placing the blame. Furthermore, even if it were salutary to fix blame, there is seldom any clear evidence that parents or teachers are at fault. This kind of psuedo-diagnosis is pure supposition. Parents of good readers (as well as those of poor readers) place a good deal of pressure on their children to succeed and they credit the ensuing success to such pressure. With reference to teaching, a child may receive the self-same instruction at age nine and at age twelve. He did not profit from it at nine. He profits from it at twelve. Therefore, we *assume* that he did not receive instruction at age nine. And seldom do we check on the truth of that assumption.

Then what are causes? How about low intelligence? How about brain-damage? The comforting thing about such "causes" is that, having invoked them, our responsibility is at an end. After all, what can be done about them. We aren't expected to raise intelligence are we? And everybody knows that damaged brain tissue cannot be restored.

But the very fact that we are beginning to feel comfortable should make us wary. The propensity for inducing comfortable feelings is the hallmark of the clay idol. What does the evidence really say about intelligence and reading skill?

Read the evidence as Bliesmer did a few years back for his report to this group. The "classic" studies do not bear close scrutiny. Intelligence becomes an important component of reading ability only after independent reading has been achieved, roughly about the 5th grade level. But our reading problems are those who fail to achieve that level. Furthermore, the inference of causation is based upon evidence showing that some, perhaps even a sizeable proportion, of readers have low intelligence. If we follow that line of reasoning, we must infer also that high intelligence causes reading disability; after all, some, even a sizeable proportion of poor readers have unusually high intelligence.

The same kind of counter-argument can be made for "brain damage" as a cause of reading disability. "Damage" is inferred from perceptual and motor behaviors, from a history of encephalitis, cerebral palsy or epilepsy, or from electroencephalograms. The fact that reading disability may be coincident with such symptoms proves nothing. As a matter of fact, evidence is accumulating that such children, hyperactive, distractible, presenting serious problems of control, behave normally and and read normally within 24 hours after being treated as though the cause were a metabolic disorder. But then, everybody knows that damaged brain tissue cannot be restored.

The first clay idol is, then, the dead-end diagnosis. When it is applied, nothing more need be done for the client.

Skills

Let's next look at reading skills. How many times have you heard the salesman say, "This machine will increase both perceptual speed and span of recognition." I quote from two circulars which crossed my desk last week, both extolling the merits of tachistoscopic devices:

> "The reader increases his reading rate by broadening his eye-span [the distance between his eyes?], by shortening his eye pauses and by developing a rhythmic movement of eyes along the reading lines. Broadening his eye pauses [or eye-span?] . . . "

The other:

> "Broadens the spans of perception and recognition—instead of one or two words the student perceives four or five words at a time."

Obviously, advertising materials don't need to make sense in order to sell the product. They need only inspire faith. Perceptual speed is a function of familiarity with the configuration (usually a word) and of electro-chemical processes over which we have only a little control. Consider the effects of tachistoscopic practice on digit recognition. At the beginning of training, the typical adult subject recognizes a series of about five digits with brief presentation. After six months of training, he reports seven digits. But at the beginning of training he can already report whole phrases and sentences such as:

The boy ran home.

Once upon a time

Both have sixteen letters and spaces.

Such practice with digits will influence his familiarity with particular digits and configurations of digits. It probably has no effect on absolute perceptuel speed. Practice with digits is, however, a useful activity for small boys and others who watch license plates.

Absolute perceptual speed can probably be influenced to a small extent in a reading situation. First, an increase in muscular tension increases perceptual speed, probably by raising metabolism temporarily. And, secondly, anticipation of what is coming seems to reduce recognition time, probably by pre-sensitizing or alerting the neural counterparts of particular ideas.

Pacing devices, *when used properly,* provide conditions which force the reader to exert muscular tension and to anticipate. Under time pressure, the organism, be it a rat in a maze or a student, will find the fastest way to the goal.

But the fastest way for one may not be the fastest for another. The use of films which force the reader to follow a fixed, rhythmical method probably does as much damage as good. Superior readers, by and large, do not read rhythmically. They skim, skip two or three lines, regress and check, regress and pause, skip a paragraph, regress two paragraphs, etc. We have found two outstanding effects of film training: first, introverted subjects are quickly conditioned to a rhythmical method which then controls them—their new eye movements are inimical to comprehension; and the second outstanding effect: headaches.

The second clay idol is, then, the machine or, rather, uninformed acceptance or rejection of machines as training aids.

Comprehension

Next, let's consider the false god of comprehension. It must be a false god since we give it so much lip-service even while we do nothing about it. Let's face it. We know that, when we report a 5% increase in comprehension, what we really mean is that 5% of our trainees improved a little in comprehension. Our efforts have been to increase speed of reading and speed has increased. We have not tried to increase comprehension, at least, directly, because we know that it will not increase with current methods for the majority of our subjects.

But why are we so apologetic about speed? Our students know its value; we know its value; and we can do something about it.

It seems to me that the reason for our worship of the false god of comprehension is the pressure put upon us by critics. We don't know why comprehension does not increase and, therefore, when charged for ignoring it and working only on speed, we put up half-hearted arguments—and point to the 5% increase.

Consider the following facts:

1. The excessively slow reader fails to understand because the words come too slowly to integrate, *i.e.*, to form ideas. Increased speed results in increased comprehension for him.

2. The anxious and disorganized reader, *i.e.*, the anxious extravert, does not understand because his mind is seldom in touch with the page. Each idea serves as a spring board into his personal dream world. For him, increased speed results in decreased mind wandering and subsequent improved comprehension.

3. For the mature person, the "story comprehension" test is not a valid measure of comprehension. Most of our trainees *understand* the story about wolves, foxes, bees or whatever. The twenty questions following such a story are, rather, a measure of retention.

4. Paragraph comprehension, particularly the ability to report the main idea of a passage, is what we mean by comprehension. It will not be improved by using the usual material—a series of paragraphs each followed by four choices for a main idea. As presently prepared, one choice is usually too broad, one is too narrow, one is irrelevant and one is correct. After a few of these, the student no longer needs to look at the paragraph. He simply reads the choices, identifies the broad and narrow, eliminates the irrelevant since it has nothing in common with the other three, and chooses the remaining answer.
   Rather, comprehension will be improved, if at

all, by instructing the trainee in a concept-formation procedure. Preliminary results with slow learners taught such a procedure look promising.

The third idol is, then, comprehension, raised as the one legitimate god by the critic, and before which we burn incense while our important work, increased efficiency, is carried on clandestinely.

Referral

Let's turn last to the altar upon which we sacrifice our unsuccessful students, our failures. The altar is the anteroom of the specialist, usually a psychiatrist, opthalmologist or optometrist. Our client does not improve despite our efforts; the best we can do is to suspect anxiety, difficulty with fusion, alternating vision or some such anomaly.

Like Pontius Pilate, we wash our hands with great ceremony and considerable relief. We have done our duty. We have referred. Our hands are clean.

But let's follow the client. What happens next. The psychiatrist examines the patient. "Ah, yes. A tragedy. Anxiety neurosis." Parental rejection (if the parents are unconcerned) or rejection with reaction formation—over-solicitousness (if parents are concerned), or (if he bites) a character disorder with oral sadistic overtones *ad libitum*. The parent is abjured to love a little harder and the student is returned to school with a new entry in his cumulative record: anxiety neurosis. Or he may be given therapy so that, after a time, he learns not to bite people. He sublimates his drive and becomes a dentist, if he can get through dental school without reading.

And there's the tragedy. These people are shunted from specialist to specialist until they leave school. They still need reading instruction *after the suspected blocking condition is removed,* if it is. And we never learn whether our suspicion was right. Correct his vision, give him psychotherapy, eliminate his parents, or what you will. *But then give further reading instruction.* You will find what we have found. *In many or most cases, they still do not learn.*

One never finds that out, however, so long as he worships before the altar of the specialist. Once again, it's a great comfort to be able to refer, a good sign that we've erected another idol. Referral is justified only when we continue to regard the client as our responsibility—unless we prefer to be acolytes.

And that is my message. The dead-end diagnosis, the worship of specialists, and other sacred cows are blocking our progress. Let's first be honest with ourselves. Let us be proud of our successes. But then let us admit our failures since today's failures are tomorrow's successes—if we will accept the challenge of our ignorance, of the darkness.

Don't expect to find the answers to your questions in books. Yesterday's facts are today's errors. As Bacon put it, "Knowledge keeps like fish." Don't expect the specialist to know the answers to your problems either. He doesn't. The answers lie in the behaviors of your clients, waiting there for you to discover them.

And you will discover them. Simply observe and question; then, speculate and test. If your speculations carry you across the boundaries of other disciplines, follow them. Knowledge is public domain. Only in the age of the specialist was cross discipline research *verboten*. But that era is past.

We have now entered the age of the generalist. The 15th century *uomo universale,* the universal man of the Renaissance, is due for a rebirth in the 20th century.

Review of Recent Research On College and Adult Reading

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The great majority of reports or articles referred to in this year's review represent the results of a rather thorough search in the issues of the past twelve to fifteen months of approximately forty-five different periodicals. Several reports appearing earlier but not utilized in last year's review[5] have also been included. A number of references pertinent to the purposes of this paper were also found in the last Yearbook of this Conference[10] and in the published proceedings of the last meeting of the International Reading Association.[21] In addition to reports of actual research, a number of reports which appeared to have direct or indirect relationships to, or implications for, college and non-college adult reading and study programs, procedures, skills, and habits have been included in this review. Treatment of the various reports or articles has been organized in terms of a small number of rather broad headings.

Reading Programs

A considerable number of reports found in the literature related to specific programs for improvement of reading or study skills. Several programs were with business, government employee, or non-college adult groups; but the great majority dealt with college groups. As in the past, the reported programs continue to represent considerable variations in types of programs, procedures employed, evaluation instruments used, length, and the like. Use of standardized reading tests and/or statistical analyses of gains were indicated in, roughly, only half the reports. Only two evaluations of reported programs utilized control groups.[36,60]

Bryant[8] and Patterson[54] reported results of surveys of programs with industrial groups; and Fulker presented an analysis, based largely on a survey of the literature of approximately the last ten years, of trends in college and adult reading improvement programs[23] and an analysis of trends in reading programs in governmental agencies,[24] the latter based on several recent surveys of government-sponsored programs and a recent extensive survey of literature on college and adult reading programs. Indications resulting from analyses of responses obtained by Bryant[8] from 165 training directors, or the equivalent, included the following: that approximately two-thirds of the companies had programs available; that over one-half of those without programs were interested in starting programs; that broad objectives and purposes of programs varied considerably but seemed centered around the improvement of speed and comprehension; and that programs were quite successful in improving rate but that comprehension was relatively unaffected. Patterson sent a follow-up questionnaire to the 132 respondents in a 1956 survey (results of which were reported in the Sixth Yearbook of this Conference). Analysis of the 103 responses obtained, and comparison with the 1956 survey results, indicated that, although certain emphasis shifts had occurred, a strong interest in reading training was still in evidence. Among the more specific findings were a decrease in proportion of top management, but an increase in non-supervisory, employees participating and an increase in companies' use of their own training department personnel to conduct reading programs. In both surveys, the tachistoscope was found to be the most frequently used piece of equipment.

Among the several reports of specific programs with industrial groups was one by Jones.[36] A different method of training was used with each of three groups of industrial executives. One group was trained with the aid of several types of both group and individual type of training equipment, a second group with only group type training equipment, and a third group without aid of any commercial equipment. Significant gains in rate, comprehension, and "reading index" scores were found. Significant differences in gains between each experimental group and a control group were found; but no significant differences were found among the experimental groups. Thus, no one of the experimental methods was shown to be most beneficial. Retesting results obtained eight months after the end of the program indicated retention of benefits gained by each of the three methods. McConihe[43,44] reported a rather novel and seemingly promising approach to training of industrial groups. During a ten-weeks program with an industrial management group of 56 people, only four group meetings were held (for a total of approximately 8 hours of group meeting time). At the end of the program, mean reading rate had increased 92 per cent and mean comprehension had increased from 62 per cent to 73 per cent. McConihe interpreted recheck data obtained for 22 of the original 56 participants one year after completion of the initial program as indicating retention, on the average, of training period gains. Weed[76] reported a 69 per cent gain in rate and a 14 per cent loss in comprehension for a group of Temco Aircraft Corporation employees. (*Before* scores were based on the first "applied reading selection" read by participants; *after* scores on the last three "applied reading selections".) Six months after training was completed, the mean rate score was found to be only 37 per cent greater than at the start of the program; but 14 per cent increase in mean comprehension scores was found. (These latter scores were based on three selections from *SRA Better Reading Book 2*.)

Among conclusions or observations made by Williams[80] as a result of a summer of intensive study of reading habits, needs, and skills of business men were the following: that business men are primarily concerned with improving other than their professional reading; that reading ability of the average executive is underestimated because of tendencies to view ability primarily in terms of speed and that courses need to be more challenging to minds and abilities of students; that when business men give inability to concentrate as a cause of their slow reading, this should actually be the other way round; that dissatisfaction with the course often results because of "false expectations or unfortunate misconceptions" prompted largely by claims of great rate increase presented in "ill-informed articles in the press."[80,8] Williams also found that test scores of seven out of eight men retested six months after completion of a reading course had improved over their final test scores in the course.

A considerable number of reports dealing with college reading and study skill programs was found in the literature. The concern of a number of these, however, was not primarily with presentation of gains or increases in test scores obtained. Increases in several programs were reported in terms of general, or total, reading test scores;[11,40,45,62] but significance of increases was not indicated in one report.[11] Gains in both rate and comprehension were reported for two program;[22,45] significant rate, but not comprehension, gains were indicated in five reports.[19,20,58,60,61] Measurement of vocabulary skills was indicated for only three programs, reported significant increases being obtained two[45,72] but not in the third.[58] Significant gains in rate and in "rate of comprehension," were also reported for one program.[58] Subjective reactions of participants in the several programs in which such were obtained tended to be favorable.[11,40,61] (Such reactions obtained in industrial programs were treated previously). Permanence of gains was indicated in three reports by recheck results obtained ten weeks after completion of one program[61] and six months later in two others.[19,40]

Other, or additional, methods of evaluating progress of program participants were also employed in some programs. When Dumler[19] compared accelerator settings of subjects in his study with their test results, he found "considerable discrepancy" in favor of the accelerator settings. An increase in class grade index, as compared with those of similar previous classes taught by the same instructor, and observations made as a result of daily informal analyses were interpreted as indications of comprehension gains by one pair of investigators.[22]

Several attempts to provide some type of help to students deficient in reading and study skills before they entered college were reported.[11,45,64] Centi[11] and McConihe[45] described programs sponsored by Fordham University and Western Reserve University, respectively. Only 18 of the 60 hours in the four-weeks program reported by Centi were devoted to reading improvement and 6 hours to study skills improvement. Both Centi and McConihe reported significant gains in test scores. In a plan described by Sinclair,[64] all interested high school students in the area of a small, state-supported, liberal arts college were administered an English Placement Test in December. English staff members then visited the schools involved, discussed the nature and extent of deficiencies revealed by test results and remedial procedures, after which the schools offered special classes to aid the students in overcoming weaknesses. The fact that a number of students scored sufficiently high on another administration of the placement test, at the end of their special courses, to permit them to go directly into regular freshmen English classes was interpreted as evidence of the effectiveness of the plan.

Materials used in a developmental reading program carried on in a European History class at St. Francis College[22] were 24 selections, ranging from 950 to 2250 words each, chosen from the text for the course. Multiple choice tests were prepared for each selection; and students read a selection and were tested at the beginning of each 24 class periods. Comprehension test items were later used "for training in critical thinking." A gain of 194 per cent in rate and a 23 per cent comprehension gain were reported. In a reading program reported by Schwartz,[61] 74 U. S. School of Medicine students were tested with technical reading material, as well as with reading tests, at the beginning and at the end of the reading course in which only non-technical material had been used. An average of 104 per cent improvement in rate was found with an apparently negligible decrement in comprehension accompanying the rate increase. Differentiated instruction at each of three levels (based on Cooperative Reading Comprehension Test scores) was offered in an all-freshmen, one-semester program at Morgan State College.[49] Students who scored below the median for grade thirteen on a pretest (*Iowa Silent Reading Tests*) but who scored at or above the median on another form of the test by mid-semester were allowed to discontinue the course with credit at mid-term. Only 15 of 443 enrollees scored above the median on the pretest; by mid-term, 104 had reached or exceeded the median. Data reported for this program by Lee are somewhat confusing and difficult to interpret because some of the participants entered the program after pretests had been administered, a considerable number of students who reached the fiftieth percentile on the mid-term test dropped out of the course, both mid-term and end-of-course test data were apparently combined in the comparisons of the end results, and different tests were used for initial assignment levels and for evaluations of results. (Apparently, percentile ranks of students on the Cooperative Test were higher than were those on the Iowa Test.) Gains were reported for all groups, with median percentiles of students in the "high" and "intermediate" level groups approaching or exceeding the fiftieth percentile (Iowa Tests) by the end of the course. The "low" level group reached a median percentile of only 24 by the end of the semester. In a special study course at the University of Mississippi, four groups of 19 freshmen each, taught by three different instructors, had the topic of reading skills presented to them between the sixth and eighth week of the semester only.[58] During the remainder of the term three groups continued practicing for a part of each class period with "standard reading exercises"; the fourth group received no additional instruction. The groups were tested at the end of the semester but, apparently, not at the end of the eighth week. All three groups which had supplementary exercises gained significantly in rate but not in comprehension or vocabulary. The fourth group, which did not have supplementary practice, made no significant gains in any of the three areas. One of the other groups which had been taught by the same instructor and had received supplementary practice made significantly greater gains in rate, vocabulary, and comprehension than did the fourth group. Sayles[60] tested groups of students in a six-weeks reading course at the end of the fourth week as well as at the end of the program. Initial score differences between the experimental group and the control group were not significant. Mean differences for final comprehension scores of the two groups were not significant; but final rate and "rate of comprehension" mean differences were in favor of the control group.

Scott[62] has described the development of, and the modifications in, the Lynchburg College Reading Program. Comparisons of potentiality for reading improvement (determined with the *California Tests of Mental Maturity*) and actual reading improvement (determined with *California Reading Tests*) were made for several semesters; and eligibility for the reading course eventually became dependent upon potential for improving reading skills "above the average adult level". During the 1953-54 session, median reading grade-equivalent scores of students in the one-semester courses advanced from 10.0 to 11.0, with a median potentiality of 11.3 obtaining. Comparisons of an experimental group of 20 students, with differences between present and potential attainment levels, with a control group of 18 students for whom estimates of high motivation were made (but to whom the criterion of gap between achievement and potential were not applied) yielded significant differences favoring the experimental group; so it was decided to continue using the criterion of present versus potential attainment for enrollment during the 1955-56 school year. (Apparently, Scott's potentiality calculations were made relative to the beginning, rather than to the end, of the training period.) A vocabulary development program devised at the University of Minnesota and used in a ten-weeks "Reading Efficiency" course was described by Thompson.[72] The method relied extensively upon work with prefixes and root elements. Evaluation results obtained indicated that the approach offered "a promising vocabulary tool."

Yudin[82] compared results of an "experience-centered core method of instruction" with those of a "conventional content-centered" method relative to improvement of critical thinking ability (as measured by *Watson-Glaser Critical Thinking Ability Appraisal*) of college freshmen. He found neither group had made significant gains at the end of the freshman year; but there were indications of slight superiority of the control group over the experimental group and of the brighter students of the experimental group over the less bright ones. Wooster,[81] evaluating effectiveness of teaching an "SQ3R" method of study in an Ohio State Study Course, found that, while students could readily tell what the method was and had apparently learned to take high quality notes, none seemed to learn the method as "the integrated technique for which it was being taught." Newman and Highland[52] evaluated the effectiveness of several mass communications media for replacing some functions of an instructor. They compared results obtained in a five-day principles of radio class in which an instructor played the regular information giving role with results obtained in classes in which various mass media (tape recorder and workbook method, supervised reading method in which material was presented by chapters within a note book, and tape-recorder and slide method) were used. Post-course examination results for the three mass media groups did not differ significantly from those of the instructor group. There was some indication that effectiveness of mass media methods might vary with course length.

Reading and Study Skills and Habits

Status Indications

Boykin[7] presented an extensive summary of reading test data collected during the period 1950-54 at three different Negro Colleges. Data reported were obtained from 3,686 students as a result of 18 different test administrations and use of 6 different reading tests. Analysis and interpretation of the various data indicated that the "average" reading level of the Negro College students tested was between tenth and eleventh grade. Grade-equivalent scores ranged from fifth grade to college senior level. One-fifth to one-fourth of the students scored at or above a college freshman level; and approximately five per cent "scored above the expected level of performance in terms of the norms of the test."[7:475] Burrows,[9] using questionaire and interview techniques with a representative sample of elementary and secondary teachers in a New York county, found that teachers appear to read about as much as other college graduates and decidedly more than the general, unselected population. She pointed out, however, that teachers are "not outstandingly active in the wider reaches of literate pursuits";[9:254] and concern was expressed over the finding that only about one-third of the college-educated citizenry is likely to read from a book on any given day.

On the basis of years of teaching and supervisory experience, counseling and orientation work with university students, and work with personality and adjustment measures and data, Hadley[27] estimated, "conservatively", that "95 per cent of college entrants lack adequate study skills," that "a relatively small percentage have reading speeds and comprehension skills adequate for handling all college assignments," and that a great proportion are "unable to take good useable notes."[27:353] He attributed these lacks to students' previous high school experiences, which he maintained were such that exercise of better and more adequate skills was not required. Among the study problems Olsen[53] found mentioned most frequently in his survey of 297 college students were inability to concentrate completely upon the study task at hand and inability to follow a study schedule. Lack on interest and general lack of specific study skills and abilities (the only category in which reading skills were included) were mentioned with much less frequency.

Tillson[73] reported results of interviewing and rating 32 "superior readers," chosen from Purdue University developmental reading classes, who were interviewed and rated on a five-point scale, in accordance with suggestions made in Gray and Rogers' *Maturity in Reading*. The greatest numbers of students were rated 3 or 4 on five of the six areas specifically investigated. On "Amount of Time Spent in Voluntary Reading," all but ten students ranked only 1 or 2. Hoffman[31] found only 1 out of 37 students in an introductory psychology course able to define correctly more than 39 of the 53 non-technical words which had been selected from the first chapter of the course text; one-half of the class was unable to define 40 per cent or more. Hoffman concluded that the difficulty was more in the students than in the textbook; and he used the obtained results as an argument for more selectivity in admission procedures. The median reading test scores of a group of 60 "select" and "successful" business and professional men in Jack's study[33] were found to be somewhat higher than those of a group of 91 eighth grade students, when both groups were compared on the basis of norms for eighth grade. Jack pointed out, however, that if twelfth grade norms had been applied to the men's scores, the children would have been shown to excel by a greater margin than did the men when the lower level norms were used.

Halfter and Douglass[28] emphasized operational definition of reading skills required for academic success as "thinking" skills rather than as "comprehension". This emphasis was the result of a five-year investigation, by the reading staff at De Paul University, of texts, tests, and instruction in courses in the College of Commerce. A classification and explanation of five levels of thinking skills which seemed to be required was presented by Halter and Douglass. Sherman,[63] in an investigation of relationship of delayed comprehension to other aspects of reading, concluded that delayed comprehension was a skill which could be taught as one of the higher level study skills.

Influence of Skills and Habits

A number of studies or reports had reference to, or implications for, the influence of reading and study skills, habits, and improvement. Currie,[17] studying differences between a group superior and a group deficient in college freshman composition, found the superior group excelling significantly with respect to reading ability and study habits, among other factors. Of twenty-nine factors studied, "verbal aptitude or reading ability" was found to head the list of those having greatest effect upon writing competence. The fifty Bethany College students in Dumler's study[10] were found to have made not only significant reading rate gains after a twenty-weeks training program with the tachistoscope and accelerator; but they also made highly significant improvement on *Minnesota Clerical Test* scores, which finding was "contrary to statements made in the test manual".[10:30] Students in Eppley's investigation[20] also made significant rate gains in a "Methods of Study" course; but it was also found that skill in utilizing various speeds did not necessarily accompany the higher reading rates. However, reading proficiency was found to be associated with academic standing of a majority of Eppley's students. The gains in grade index which accompanied the reading rate and comprehension gains of students participating in a developmental reading program in a history class[22] were treated earlier in this review. Among factors found by Mumpower to be significantly more characteristic of education majors who achieved "beyond expectancy" than of those who did not were better study habits. In a study with approximately 500 basic airmen,[34] the reading methods was found to be significantly superior to the lecture (tape-recorded) method of presenting complex learning material. Further findings indicated that preference of presentation had little influence. The significant role of language facility in personality tests of the pencil-and-paper type was demonstrated in an investigation reported by Levy.[42] A group of subjects with low vocabulary test scores (*Diagnostic Reading Tests*) made scores on the *Allport-Vernon Study of Values* which were significantly different from their scores on a modified form (simplified in language but supposedly congruent in all other respects) of this instrument.

Several reports of prediction-type studies also contained implications relative to influence of reading and study skills. Results obtained by Mose[40] in his investigation, involving college entrance examination and other data and social studies test scores of approximately 4,000 freshmen, led him to conclude that objective test data (including reading comprehension test scores) were more useful in determining factors influencing academic success in social studies courses than were high school social studies grades or numbers and kinds of social studies courses taken in high school. Results obtained in Kim's prediction study[38] indicated that study habits (concerning which objective data were obtained), among other non-intellectual factors, as well as academic aptitude played a significant role in determining college grades. Zero order and multiple correlations (involving scores on various parts of the *Cooperative English Test*, Lower Level, and grade-point averages of about 3,000 freshmen) obtained by Jensen and Clark[35] caused them to conclude that "effectiveness of expression" and "reading comprehension" scores did not contribute substantially to predictive power.

Factors Influencing Skills and Habits

A number of reported studies had pertinence to the influence of given psychological or personality factors on reading or study habits and skills. Alpert[2] found empathy bearing little relationship to ability to read either factual or literary materials. Ability to maintain objectivity, or to keep from projecting in reading, was found to be related significantly to reading of factual materials, especially among males, but significantly related to reading of literary materials only for females. Dumler[19] found no significant relationships between reading rate increases attained in his tachistoscope-and-accelerator-oriented reading program and *Miller Analogies Test* scores. Relationships between certain personality factors (*Minnesota Multiphasic Personality Inventory*) and rate increments were inconclusive; but negative ones were indicated. Results of analyses made in Eppley's study[20] of interaction between reading skills and various personal factors in relation to academic achievement indicated that academic success of students was dependent upon "the way the individual utilized, applied, and integrated his learning potential with interacting personality and environmental factors".[20:730]

In a study of contributions of several variables to variability in improvement of reading performance (vocabulary and reading comprehension scores), Chansky and Bergman[13] found hysteria moderately related and psychosthenia and verbal intelligence inversely related to improvement in both vocabulary and comprehension. Study habits were found to predict improvement better than any single variable. Sayles[6] found that a medial testing procedure depressed the final reading test scores of anxious extraverts in a reading program but had no significant effect upon achievement of other personality types. In a study reported by Walter,[75] motivation for academic achievement of freshman enrolled in a how-to-study course was inferred from responses obtained with a picture interpretations test. Groups classified in terms of motivational levels did not differ significantly in learning reading and note-taking skills. Thayer and Pronko[71] found marked concurrence of opinion in the descriptions written, by 112 college students, with regard to appearance and personality of the central character in each of five fiction excerpts. They interpreted obtained results to indicate that both perceptive and projective processes are involved in the reading of fiction and that the present wants, needs, and feelings of the reader operate in such reading. Snavely,[66] in comparing a group of college freshmen scoring high in speaking, writing, and reading skills with a group scoring low, found significant differences favoring the high group relative to a number of social, experiential, and educational background factors.

Influences of anxiety or stress were investigated in two studies[12,37] and findings in these may have implications relative to college students who are failing and are taking reading courses to "save" them. In one study,[37] no significant differences between high and low anxiety groups for number of trials to reach the learning criterion or for number of errors found when subjects were performing under non-stress conditions. Under stress conditions (induced by telling subjects, before practice, that performance on a learning task was highly correlated with intelligence and, after practice, that their practice performance was below average), the high anxiety group required significantly fewer trials to reach the learning criterion and made fewer errors. In Chansky's study,[13] relationships of anxiety of reading speed, reading comprehension, and delayed recall were found to be, in general, negative and low. Results obtained with partical correlation procedures suggested that reading rate increased under threat and that anxiety preserved recall when reading under threat but impaired recall when reading under no threat.

Blue[6] found that most of the students in a social psychology course who had studied in an organized group achieved higher grades than did the group which had studied alone. After finding that a group of airmen who had not been given study suggestions for learning names of electrical symbols did better than a group which had been given suggestions for study techniques, Newman[51] concluded that the practice of allowing students to decide upon their own study techniques for given learning tasks was defensible. Strang[69] classified the responses of 536 students in compositions on "What Makes Studying Easy or Difficult for Me." The three highest ranking factors for the composite group of high school and college students were privacy, quiet environment (TV and radio not included), and freedom from other concerns and worries and competing interests.

Results obtained by Ausubel and others[3] in an investigation of retention suggested that interpolation of material substantively similar, but not identical, to the original learning material promotes as much retroactive facilitation of retention as does identical repetition of the learning material. Crannell and Parrish[15] found immediate memory span for materials presented orally to be significantly longer for digits than for letters or words and significantly longer for letters than for words. The influence of several variables on rate of lapse of meaning of words was studied by Wertheimer and Gillis.[77] Their results led them to conclude that meaning is retained longer for words which are short rather than long, one-syllable rather than two-syllable, have objective rather than abstract referents, and occur early rather than late in a sequence of presentation. Kinnunen,[39] comparing the reading of four *Reader's Digest* articles by a group of adults with the reading of the original versions of the four articles by an equivalent group, found that original versions were read at a faster rate than were the condensed versions; that difficult articles were read more slowly in both versions than were the easier ones; but that the condensed versions were easier to read, in the opinon of readers, although less enjoyable. She concluded that the greatest advantage of digest versions is increased comprehension per unit of time. Analyses made by Letson,[41] in a study of reading rate according to difficulty of material and purpose for which being read, indicated that the fastest readers were not necessarily the best comprehenders, that a reader tends to maintain a rate which is independent of difficulty and purpose, and that the speed-comprehension relationship is high for easy material but decreases as difficulty level increases. Poulton[56] attempted to determine, in a somewhat extensive study, how silent reading comprehension was affected by different conditions of pacing and selecting. He concluded, on the basis of his various results, that the amount of material which can be comprehended in a given time is limited and that reading more rapidly than this may enable one to recall more words but not recognize more on recognition tests. Subjects in a study reported by Bendetti[4] were given the task of selecting words bearing an abstract relationship to stimulus words (nouns) and determining "closeness of meaning". The study and results obtained have relevancy to meaning associations habitually imposed upon words and appear to have implications relative to concept formation, meaning background, and comprehension.

Tests

The number of relevant reports found in the literature may be an indication of an increasing interest in, or concern with, testing instruments used in reading programs. Tests relevant to reading or study programs were utilized in several prediction-type studies. The *Brown-Holzman Survey of Study*

Habits and Attitudes (SSHA) was involved in three such studies.[1,13,33] Kim,[33] in a study of the extent to which several variables might increase accuracy of predicting academic achievement, found the combination yielding the highest multiple correlation to be one which included SSHA scores. Chansky and Bregman[13] found a three-variable combination which included SSHA scores predicting improvement in reading vocabulary and comprehension (Cooperative Test) of students in a voluntary reading course better than any other two-, three-, or four-variable combination. Study habits predicted reading improvement better than did any one of the other single variables studied. Ahmann and Glock[1] on the other hand, obtained little evidence to support inclusion of the SSHA in a freshman testing battery used in connection with a reading program; and SSHA scores made practically no contribution to prediction of academic achievement when included in a battery of six variables. Halfter and Douglass[28] found point-biserial correlations between grade point averages and *Diagnostic Reading Tests* (Survey Section), Form D, scores to be .38 for Liberal Arts students but only .15 for College of Commerce students, which findings were viewed as indications of necessity for investigation skills required in the various content areas. They further reported that a "standardized Commerce Reading Test" which was constructed was improving predictiveness of a test battery used in certain schools of business. Correlations of the Reading Comprehension and of the Effectiveness of Expression scores of the *Cooperative English Test*, Lower Level, Form Z, with grade point averages were lower than the ones obtained by Jensen and Clark[35] for Mechanics of Expression and Total scores; when Mechanics of Expression scores were combined with each of the other two as predictors, higher multiple R's were obtained than when Mechanics of Expression and Reading Comprehension were used as combination predictors.

Measurement of comprehension was the concern in several other studies; Cook's[14] comparison of reading comprehension scores obtained before and after a time announcement (subjects being told when half of the total testing time of 90 minutes had elapsed) led him to conclude that use of a time announcement to obtain a rate score is associated with more lowered comprehension scores after such an announcement than before for slow readers, but not for fast readers. Hunt's investigation[3,2] was a re-examination of the six factors indicated in an earlier study to be significant to the reading comprehension process. Results of analyses made indicated that each group of items or skills, other than vocabulary, was measuring a common factor of reading comprehension. Rankin[67] reported the results of his evaluation of the Cloze procedure (a word deletion technique in which remaining context is used to predict missing words) as a technique for measuring comprehension. He concluded, in part, that the technique used produced tests which "are not very accurate measures of general reading skill but are sufficiently accurate for measuring pre- and post-reading knowledge and 'specific reading comprehension'".[67:733] The Commerce Reading Comprehension Test developed at De Paul University and treated in Halfter and Douglass' report[28] purportedly measures "the level of the prospective students' thinking (reading skills)".[28:51]

In addition to the ones just mentioned, a number of the other new tests which may offer various possibilities for reading and study programs have been reported. Gulick and Holmes[26] have presented a discussion of the construction of the *Gulick Vocabulary Survey* and some statistical data concerning the test. Each form contains 200 words selected from the Lorge-Thorndike list of 30,000 words. A word-in-context test was described by Heim and Watts.[29] The test, still in a pilot study stage, is, purportedly, a general intelligence test "in that it demands a minimum of knowledge and a high degree of deductive reasoning".[29:214] The test involves determining meanings of crucial words by reading prose passages in which the words appear. Unfamiliarity with the crucial words, an essential condition, is determined with a preliminary test, the Self-Judging Vocabulary Scale, which has also been described.[30] A two-part test was constructed by Letson[41] for the purpose of measuring reading rate according to difficulty of material read and purpose for which material is read. Part I of the test measures rate in accordance with difficulty of material, purpose being held constant. McDonald[46] described an *Inventory of Reading Versatility* and reported results of some preliminary application to various samples. The inventory consists of three reading selections, each of which requires a different reading approach. Gray[25] briefly described the use of retrospective and introspective techniques as recent approaches to the problem of determining processes or factors in understanding or interpreting what is read.

Westover[78] compared listening and reading as testing means by giving one form of a test as a reading test and the other form by having the examiner read the test and having the examinees check answers. He found practically no difference on the two types of tests and negligible relationships between preference for listening or reading tests and test performance. Smith[65] found both rate and comprehension scores lower on Form B when both Form A and Form B of the *Traxler Silent Reading Test* were administered to 3 types of college reading improvement groups. Application of the Lorge Reading Index also indicated greater difficulty for Form B.

Eye Movements and Controlled Reading

Dingman[18] recently reported results of a factor analysis of 30 variables relative to reading test data obtained with 219 college freshmen in 1939 and various ophthalmographic data. He maintained that his data "completely" supported Tinker's position (presented in a 1946 review of eye movement studies) that eye-movements are unrelated to reading comprehension factors for normal subjects. An extensive review of recent eye movement studies was again presented by Tinker.[74] He noted a diminishing number of studies in recent years; and he pointed out that relatively few recent experiments dealt with fundamental problems, that "some writers still adhere to the notion that training eye movements as such is an effective way to improve reading,"[74:229] and that what is needed is "less activity by dilettantes who are inadequately prepared to see the fundamental problems and unable to design suitable experiments in the field."[74:229]

Tabular data presented in an article by Taylor[70] suggested that less than a single word is seen at a fixation by the average reader in elementary grades and that college students "see only 1.33 words of ten point type"[70:22] at a fixation. Taylor maintained that "the fundamental reading skill", which he defined as the "acquired behavior pattern of the eyes which always accompanies visual perception in reading",[70:21] can be developed best by a type of controlled reader training which necessitates practice of a definite ocular pattern, but that an inadequate amount of this is offered by pacers and tachistoscopic devices. Among conclusions reached by Westover,[79] after a brief crictical review of some of the research on controlled reading, were the following: that while reading may be improved by controlled reading devices, there appears, in general, to be no advantage favoring controlled reading over motivational practice; that reading gains achieved through controlled reading methods are improved through improvement of perception and organization habits rather than of eye movements; and that controlled reading may be used to improve perception and organization habits "if used by persons who understand the psychology of reading and the limitations of extrinsic devices".[79:190] Spache,[67,68] in his rationale for controlled reading, also made some of the preceding points. He also suggested what he considered the legitimate purpose of controlled reading and the various types of readers who should be permitted to enter a mechanical program. He further cautioned against assuming that all persons can be taught to read more rapidly.

The Flesch, the Dale-Chall, the Parr-Jenkins-Paterson simplification of the Flesch, and the Gunning Fog Index were the four readability formulas recalculated by Powers, Sumner, and Kearl[56] with the use of the 1950 revision of the *McCall-Crabbs Standard Test Lessons in Reading.* (The 1926 edition was used in the derivation of the Flesch and Dale-Chall formulae.) A number of measurements were made in the 383 passages of the McCall-Crabbs materials; and regression equations were computed with the measurements. Results of the revised formulas and of the original Flesch and Dale-Chall formulas were compared by applying them to various samples of writings. Multiple determination co-efficients and other data obtained indicated that the revised Dale-Chall was a more powerful tool for predicting reading difficulty, and was also slightly more precise, than was the revised Flesch. The recalculated Dale-Chall consistently gave lower scores than the original; and the recalculated Flesch consistently gave lower scores than the original about two-thirds of the time. All four formulas were found to agree more closely with one another than did the original Flesch and Dale-Chall.

Rubenstein and Aborn[59] had students in one group learn, in set periods of study, as much as they could of thirty experimental English passages, ranging in difficulty; another group went through the same passages, predicting each successive word from a knowledge of all the preceding context. Dale-Chall and Flesh readability scores were calculated for each of the thirty passages. Intercorrelations computed among mean amounts learned, mean number of correct predictions per word, and Flesch and Dale-Chall scores showed that learning, prediction, and readability were closely related, that prediction and readability correlated about equally well with learning, and that Dale-Chall scores correlated more closely with learning and somewhat more closely with prediction than did the Flesch. Despite the observed differences, the high obtained correlation between the two formulas (.91) was viewed as further evidence that the two formulae measured the same thing.

Crooks and Smith[16] applied a modification of the Flesch formula to twenty college biology, physics and chemistry texts. All but two of the books were rated "difficult." All twenty books were judged to be "dull" when analyzed with the Flesch Human Interest Scale. In the opinion of subjects in Kinnunens' comparison study, referred to earlier, of readability of digest and original versions of articles,[30] original versions were more enjoyable but digest versions were easier to read. In Levy's study,[42] also referred to earlier, the Flesch scores of the original and modified *Allport-Vernon Study of Values* were twelfth grade and seventh grade level, respectively. The significantly different scores on the two forms made by a group with low test vocabulary scores indicated that the two forms were not equivalent for that group.

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Critique

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It is my assignment to discuss this conference—where it was born, what happened this year, and what its future may be. Actually, I should not have this privilege. Oscar S. Causey has been the key figure in fathering and guiding this organization. He, better than any other, knows its history and his ideas of the future of the conference are those that should be most worthwhile.

However, I can attempt at least a portion of the assignment. Our reading conference certainly is young. But so is the history of interest in improving adult reading. Twenty to twenty-five years would take this interest back to its very beginning. At that time Stroud at Iowa, Renshaw at Ohio State, Wheeler at Miami, and Buswell at Chicago were just beginning to be interested in the mature reader. Primarily, they were experimenting with relationships between speed and comprehension. Later they and others began to develop procedures for improving reading ability. It was only about ten years ago that the equipment manufacturers began to dream of profits in the field, and it was still later that the printed workbooks started to appear.

Now let us examine the National Reading Conference itself. Its history, although brief, began soon after the dawn of the general interest in adult reading. It began as the Southwest Reading Conference. It held its first meeting (about a six-hour program) on April 25, 1952. As interest in adult reading increased, the conference outgrew its regional designation. It has become a National Reading Conference—the dominant one in its field.

So much for history. What were the high points of this conference? Perhaps most important was our attempt to make some separation in the program of the practical (how to run a reading program) from the more theoretical (the research oriented papers and discussion). Thus in Thursday's program, from eight to about five o'clock, we dealt with the practical. At 8 p.m. Thursday evening we began to emphasize the *why* rather than specifically the *how*.

We hoped that this plan might help to solve a problem. Reading improvement has become a great practical concern to the high schools and junior colleges. Although the active participants in the conference have generally been research oriented directors of college and university reading programs, over the past few years we have drawn increasingly large numbers of teachers and administrators as observers of the conference. Thus we have tended to have two groups.

The purpose of the active participants was to share ideas concerning research and theory; the purpose of the observers was to learn how to conduct a program. Certainly the observers were somewhat impatient with the theory and on the other hand the conferring "experts" became concerned that the conference might cease to function as a place for sharing new findings and proposing explanations. This year's day of emphasis on the practical followed by nearly two day's discussion of more theoretical issues made it possible for each person to choose his own fare.

To attempt to evaluate the contributions of various speakers would be presumptuous. Certainly those of us who attend regularly have come to look forward to Emery Bliesmer's review of the research. And for the many who had read Prof. Stroud's books and articles, particularly those of us who were his students, it was a high point to have him participate in the conference. In addition, we were all pleased to see some new names in major spots on the program. Many of us have been on the program enough times that if others are not tired of us, we are at least somewhat tired of ourselves.

And now for a look into the future. Where do we go from here—both as a conference and in our understanding of adult reading and its improvement?

The future of this conference and the future of adult reading can be predicted only in very general terms. The interest in adult reading should continue to grow, and with it our conference should grow.

In looking toward the future, we might profit from attempting to identify the trends in the research in adult reading that seem to appear. Near the beginning tachistoscopes and accelerators in various forms tended to dominate our programs. Our focus was upon the mechanics of reading, but our present emphasis certainly is upon the perceptual nature of reading.

From certain papers at our recent meetings we can see that reading programs in industry are beginning to receive some serious study. Some industrial programs are showing concern for the nature of reading and the evaluation of results rather than focusing merely on how to operate accelerators and how to sell programs. The machines themselves are being seen as motivators rather than as magic wands. And in all of our adult programs we are emphasizing motivation rather than eye training.

There seems to be some change in the goals that we recognize for reading improvement. In the past, improvement was evaluated through rate or at best by rate and comprehension scores. We now are talking of rate *of* comprehension and of flexibility in reading. Our reading tests almost certainly will develop in the direction of providing indices of flexibility. Our emphasis, particularly in the college programs, is moving from the reading of newspaper and story materials toward the effective reading of work-type materials. Here again we see the direction of development toward power and flexibility rather than speed.

When we come to view reading as a thinking rather than a mechanical process, we focus our attention on vocabulary development. We are made increasingly aware of the numerous dimensions of vocabulary. We become less concerned with the gross number of words that one knows and more concerned with the breadth of experience behind each word. We know that words and their combinations are related to attitudes, feelings—to the very culture of man. Although it has been said that a picture can replace 1,000 words, in many cases our meanings for a single word evoke 1,000 mental pictures.

All along the line our definition for reading has been developing. Originally we thought of reading as pronouncing words, later we emphasized the arousal of meaning, but now we are concerned with the interactions between writer and reader. We now focus more upon what the reader takes to the printed page than upon what the writer placed there. We are seeing reading as related to all areas of psychology. We see that the principles of learning and forgetting apply both to learning to read and to the use of reading for learning. Reading at once is an excellent example of a process to be learned and of a learning process.

Adult reading as a professional area certainly is still in its adolescent period. But in human development it is during the lusty, searching adolescence that we find greatest growth in attitudes and in physical size and strength. Perhaps this adolescent profession, too, will make its greatest growth while it strives toward mature status.